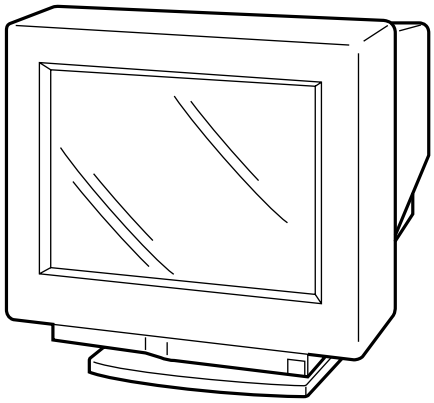
CPD-200GS

SERVICE MANUAL

Australian Model
Chinese Model

Chassis No. SCC-L07A-A



D-1H CHASSIS

SPECIFICATIONS

Picture tube	0.25 mm aperture grille pitch 17 inches measured diagonally 90-degree deflection
Viewable image size	Approx. 327 × 243 mm (w/h) (12 7/8 × 9 5/8 inches) 16.0″ viewing image
Resolution	Horizontal: Max. 1280 dots Vertical: Max. 1024 lines
Standard image area	Approx. 312 × 234 mm (w/h) (12 3/8 × 9 1/4 inches) or Approx. 293 × 234 mm (w/h) (11 5/8 × 9 1/4 inches)
Deflection frequency	Horizontal: 30 to 85 kHz Vertical: 50 to 120 Hz
Audio output	0.5W (mono)
Headphones jack	Stereo minijack Accepts impedance of 8 Ω or more
AUDIO IN jack	Stereo minijack
AC input voltage/current	100 to 240 V, 50 – 60 Hz, 1.9 – 1.1 A
Power consumption	Max. 120 W
Dimensions	406 × 432 × 420 mm (w/h/d) (16 × 17 1/8 × 16 5/8 inches)
Mass	Approx. 18 kg (39 lb 11 oz)
Supplied accessories	See page 6

Design and specifications are subject to change without notice.

TRINITRON® COLOR COMPUTER DISPLAY

SONY®

MICROFILM

POWER SAVING FUNCTION

This monitor has three modes of reduced power consumption. By sensing the absence of video signal coming from the computer, it reduces power consumption as follows.

	Power consumption mode	Power consumption	Recovery time	⏻ indicator
1	Normal operation	≤ 120 W (CPD-200GS) ≤ 110 W (CPD-100GS)	—	Green
2	Standby (1st mode)	≤ 15 W	Approx. 5 sec.	Green and orange alternate
3	Suspend (2nd mode)	≤ 15 W	Approx. 5 sec.	Green and orange alternate
4	Active-off (3rd mode)	≤ 8 W	Approx. 15 sec.	Orange
5	Power-off	0 W	—	Off

Note

If the video signal cable is not connected, the "NO INPUT SIGNAL" message (page 18) appears. After 30 seconds, the power saving function automatically puts the monitor into the active-off mode and the ⏻ indicator lights up orange. Once the horizontal and vertical sync signals are detected, the monitor automatically resumes its normal operation mode.

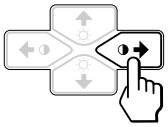
DIAGNOSIS

This monitor is equipped with a self-diagnosis function. Use this function if there is a problem with your monitor or computer.

1 Disconnect the video input cable or turn off the connected computer.

2 Turn the monitor off and on.

3 Press and hold the ◑➡ button for 2 seconds.



If all four color bars appear (white, red, green, blue) after a few seconds, the monitor is working properly but there might be a problem with your computer. Contact your computer's manufacturer.

If the color bars do not appear, there is a potential monitor failure. Inform your authorized Sony dealer of the monitor's condition.

TIMING SPECIFICATION

MODE AT PRODUCTION	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7	MODE 8	MODE 9	MODE 10	MODE 11
RESOLUTION	640 X 480	800 X 600	800 X 600	832 X 624	1024 X 768	1024 X 768	1024 X 768	720 X 400	640 X 480	1280 X 1024	1280 X 1024
CLOCK	25.175 MHZ	49.500 MHz	56.250 MHz	57.283 MHz	78.750 MHz	80.000 MHz	94.500 MHz	28.322 MHz	36.000 MHz	135.000 MHz	108.000 MHZ
-- HORIZONTAL --											
H-FREQ	31.469 kHz	46.875 kHz	53.674 kHz	49.725 kHz	60.024 kHz	60.241 kHz	68.677 kHz	31.469 kHz	43.269 kHz	79.976 kHz	63.981 kHz
	usec	usec	usec	usec	usec	usec	usec	usec	usec	usec	usec
H. TOTAL	31.778	21.333	18.631	20.111	16.66	16.6	14.561	31.777	23.111	12.504	15.63
H. BLK	6.356	5.172	4.409	5.586	3.657	3.8	3.725	6.355	5.333	3.022	3.778
H. FP	0.636	0.323	0.569	0.559	0.203	0.4	0.508	0.636	1.556	0.119	0.444
H. SYNC	3.813	1.616	1.138	1.117	1.219	1.2	1.016	3.813	1.556	1.067	1.037
H. BP	1.907	3.232	2.702	3.91	2.235	2.2	2.201	1.907	2.222	1.837	2.296
H. ACTIV	25.422	16.162	14.222	14.524	13.003	12.8	10.836	25.422	17.778	9.481	11.852
-- VERTICAL --											
V. FREQ(HZ)	59.940 Hz	75.000 Hz	85.061 Hz	74.550 Hz	75.030 Hz	74.927 Hz	84.997 Hz	70.087 Hz	85.008 Hz	75.025 Hz	60.020 Hz
	lines	lines	lines	lines	lines	lines	lines	lines	lines	lines	lines
V. TOTAL	525	625	631	667	800	804	808	449	509	1066	1066
V. BLK	45	25	31	43	32	36	40	49	29	42	42
V. FP	10	1	1	1	1	3	1	12	1	1	1
V. SYNC	2	3	3	3	3	3	3	2	3	3	3
V. BP	33	21	27	39	28	30	36	35	25	38	38
V. ACTIV	480	600	600	624	768	768	768	400	480	1024	1024
-- SYNC --											
INT(G)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
EXT(H/V)/POLARITY	YES -/-	YES +/+	YES +/+	YES -/-	YES +/+	YES -/-	YES +/+	YES -/+	YES +/+	YES +/+	YES +/+
EXT(CS)/POLARITY	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
INT/NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT	NON INT

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WARNING!!
NEVER TURN ON THE POWER IN A CONDITION IN WHICH THE DEGAUSS COIL HAS BEEN REMOVED.

SAFETY-RELATED COMPONENT WARNING!!
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

SECTION 1
GENERAL

Precautions

Installation

- Prevent internal heat build-up by allowing adequate air circulation. Do not place the monitor on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the monitor near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not place the monitor near equipment which generates magnetism, such as a transformer or high voltage power lines.

Maintenance

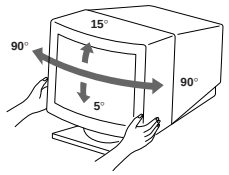
- Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent, such as alcohol or benzine.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ballpoint pen or screwdriver. This type of contact may result in a scratched picture tube.
- Clean the screen with a soft cloth. If you use a glass cleaning liquid, do not use any type of cleaner containing an anti-static solution or similar additive as this may scratch the screen's coating.

Transportation

When you transport this monitor for repair or shipment, use the original carton and packing materials.

Use of the Tilt-Swivel

With the tilt-swivel, this monitor can be adjusted to the desired angle within 180° horizontally and 20° vertically. To turn the monitor vertically and horizontally, hold it at the bottom with both hands as illustrated below.

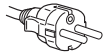


Warning on power connection

- Use an appropriate power cord for your local power supply.
  For the customers in the U.S.A.
  If you do not use the appropriate cord, this monitor will not conform to mandatory FCC standards.

Examples of plug types:

for 100 to 120 V AC


for 200 to 240 V AC

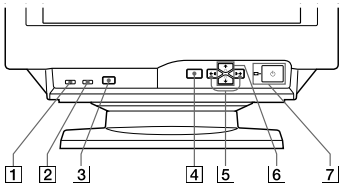
- Before disconnecting the power cord, wait at least 30 seconds after turning off the power to allow the static electricity on the CRT display surface to discharge.
- After the power has been turned on, the CRT is demagnetized (degaussed) for about 5 seconds. This generates a strong magnetic field around the metal frame, which may affect the data stored on magnetic tapes and disks near the bezel. Place magnetic recording equipment, tapes and disks away from this monitor.

The outlet should be installed near the equipment and be easily accessible.

Identifying Parts and Controls

See the pages in parentheses for further details.

Front



1 **MUTING button (page 7)**
Mutes the sound.

2 **RESET button (page 15)**
Resets the adjustments to the factory settings.

3 **GPE button (page 16)**
Selects the Graphic Picture Enhancement (GPE) mode.

4 **MENU button (pages 7 -15, 17)**
Displays the MENU OSD.

5 ◑ **(contrast) (←/→) buttons (pages 7 – 15, 20)**
Adjust the contrast.

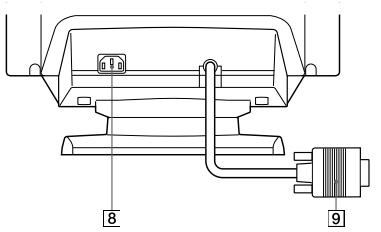
Function as the (←/→) buttons when adjusting other items.

6 ☼ **(brightness) (↓/↑) buttons (pages 7 – 15)**
Adjust the picture brightness.

Function as the (↓/↑) buttons when adjusting other items.

7 ⏻ **(power) switch and indicator (pages 17, 20)**
Turns the monitor on or off.
The indicator lights up in green when the monitor is turned on, and lights up in orange when the monitor is in power saving mode.

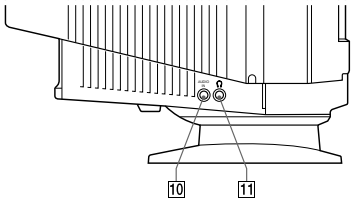
Rear



8 **AC IN connector**
Provides AC power to the monitor.

9 **Video input connector (HD15)**
Inputs RGB video signals and SYNC signals.

Side



10 **AUDIO IN jack**
Inputs audio signals when connected to the computer's audio out jack.

11 ∩ **Headphones jack**
Outputs audio signals to headphones (not supplied).

Setup

Before using this monitor, check that the following items are included in your carton:

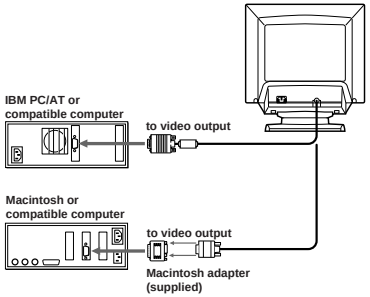
- Monitor (1)
- Power cord (1)
- Macintosh adapter (1)
- Windows® 95 Monitor Information Disk and its manual (1)
- Warranty card (1)
- These operating instructions (1)
- Audio miniplug cord (1)

This monitor works with any IBM or compatible system equipped with VGA or greater graphics capability. Although this monitor works with other platforms running at horizontal frequencies between 30 and 70 kHz (CPD-100GS), 30 and 85 kHz (CPD-200GS), including Macintosh and Power Macintosh systems, a cable adapter is required. Please consult your dealer for advice on which adapter is suitable for your needs.

Step 1: Connect the monitor to the computer

Connecting to an IBM PC/AT, Macintosh or compatible computer

With the computer switched off, connect the video signal cable to the computer's video output.



About the supplied Macintosh adapter

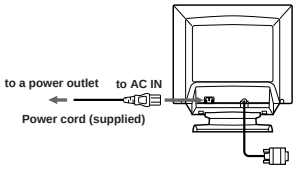
The supplied Macintosh adapter is compatible with Macintosh LC, Performa, Quadra and Power Macintosh series computers. Macintosh II series and some older versions of Power Book models may need an adapter with micro switches (not supplied).

Note

Do not short the pins of the video signal cable.

Step 2: Connect the power cord

With the monitor switched off, connect one end of the power cord to the monitor and the other end to a power outlet.



Step 3: Turn on the monitor and computer

The installation of your monitor is complete.

Note

If "OUT OF SCAN RANGE" or "NO INPUT SIGNAL" appears on the screen, see "Warning Messages" on page 18.

For customers using Windows 95

Install the new model information from the "Windows 95 Monitor Information Disk" into your PC. (Refer to the attached Windows 95 Monitor Information Disk manual.)

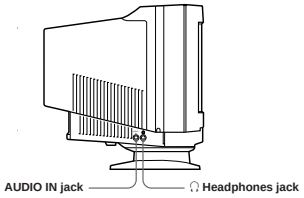
This monitor complies with the "VESA DDC" Plug&Play standard. If your PC/graphics board complies with DDC, select "Plug and Play Monitor (VESA DDC)" as "Monitor type" from "Control Panel" in Windows 95. Some PCs/graphics boards do not comply with DDC. Even if your computer complies with DDC, it may have some problems connecting with this monitor. In this case, select this monitor's model name (CPD-100GS or CPD-200GS) as "Monitor type" in Windows 95.

Selecting the On-screen Display Language

If you need to change the OSD language, see "Selecting the on-screen display language" on page 15.
The default setting is English.

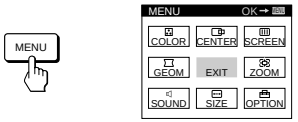
Connecting Your Monitor's Speaker

You can listen to music, sounds, and other audio files using the speaker in your monitor.
Connect the AUDIO IN jack to the audio out jack of your computer's sound card using the miniplug cord (supplied).



Adjusting the sound

1 Press the MENU button.
The MENU OSD appears.

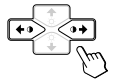


2 Press the ☼/↓/↑ and ◑←/→ buttons to select "🔊 SOUND," and press the MENU button again.
The SOUND OSD appears.

Note

While muting the sound, the 🔇 mark appears in the SOUND OSD instead of the 🔊 mark. Increase the volume to cancel the 🔇 mark and activate the speaker.

3 Press the ◑←/→ buttons to adjust the volume.



The OSD automatically disappears after about 30 seconds. To close the OSD, press the MENU button again.

To reset, press the RESET button while the OSD is on.

To mute the sound

Press the MUTING button.
No sound comes from the speaker.
The 🔇 mark appears at the bottom of the screen.

To cancel, press the MUTING button again.

Using the headphones jack

You can listen to the audio signals from your computer using headphones (not supplied). The speaker turns off when headphones are connected to the headphones jack. Adjust the volume using the SOUND OSD.

Note

If the volume from the speaker is too low, increase the output level (average of 500 mv) of the computer.

EN

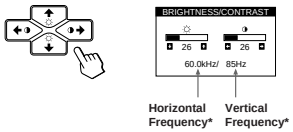
Before adjusting

- Connect the monitor and the computer, and turn them on.
- Select " (LANGUAGE)" in the OPTION OSD, then select "ENG" (English) (see page 15).

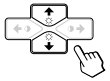
Adjusting the Picture Brightness and Contrast

Once the setting is adjusted , it will be stored in memory for all input signals received.

1 Press the ☼ (brightness) ↓/↑ or ◑ (contrast) ←/→ buttons.
The BRIGHTNESS/CONTRAST OSD appears.

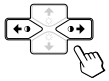


2 For brightness adjustment
Press the ☼↓/↑ buttons.



↑ . . . for more brightness
↓ . . . for less brightness

For contrast adjustment
Press the ◑←/→ buttons.



→ . . . for more contrast
← . . . for less contrast

The OSD automatically disappears after about 3 seconds.

To reset, press the RESET button while the OSD is on. The brightness and contrast are both reset to the factory settings.

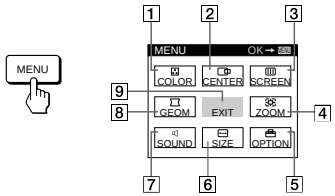
* The horizontal and vertical frequencies for the received input signal appear in the BRIGHTNESS/CONTRAST OSD.

Introducing the On-screen Display System

Most adjustments are made using the MENU OSD.

MENU OSD

Press the MENU button to display the MENU OSD.
This MENU OSD contains links to the other OSDs described below.



1 **COLOR**
Displays the COLOR OSD for adjusting the color temperature.

2 **CENTER**
Displays the CENTER OSD for adjusting the centering of the picture.

3 **SCREEN**
Displays the SCREEN OSD for adjusting the vertical and horizontal convergence, etc.

4 **ZOOM**
Displays the ZOOM OSD for enlarging and reducing the picture.

5 **OPTION**
Displays the OPTION OSD for adjusting the OSD position, degaussing the screen, selecting the OSD language, etc.

6 **SIZE**
Displays the SIZE OSD for adjusting the picture size.

7 **SOUND**
Displays the SOUND OSD for adjusting the sound.

8 **GEOM**
Displays the GEOMETRY OSD for adjusting the picture rotation and pincushion, etc.

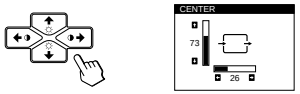
9 **EXIT**
Closes the MENU OSD.

Using the CENTER On-screen Display

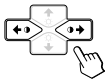
The CENTER settings allow you to adjust the centering of the picture.
Once the setting is adjusted, it will be stored in memory for the current input signal.

1 Press the MENU button.
The MENU OSD appears.

2 Press the ☼↓/↑ and ◑←/→ buttons to select " CENTER," and press the MENU button again.
The CENTER OSD appears.

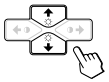


3 For horizontal adjustment
Press the ◑←/→ buttons.



→ . . . to move the picture right
← . . . to move the picture left

For vertical adjustment
Press the ☼↓/↑ buttons.



↑ . . . to move the picture up
↓ . . . to move the picture down

The OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

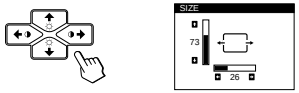
To reset, press the RESET button while the OSD is on.
The horizontal and vertical centerings are both reset to the factory settings.

Using the SIZE On-screen Display

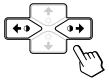
The SIZE settings allow you to adjust the size of the picture.
Once the setting is adjusted, it will be stored in memory for the current input signal.

1 Press the MENU button.
The MENU OSD appears.

2 Press the ☼↓/↑ and ◑←/→ buttons to select " SIZE," and press the MENU button again.
The SIZE OSD appears.

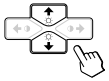


3 For horizontal adjustment
Press the ◑←/→ buttons.



→ . . . to increase picture size
← . . . to decrease picture size

For vertical adjustment
Press the ☼↓/↑ buttons.



↑ . . . to increase picture size
↓ . . . to decrease picture size

The OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

To reset, press the RESET button while the OSD is on.
The horizontal and vertical sizes are both reset to the factory settings.

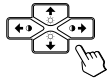
EN

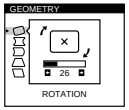
Using the GEOM (Geometry) On-screen Display

The GEOM (geometry) settings allow you to adjust the shape and orientation of the picture.
Once the rotation is adjusted, it will be stored in memory for all input signals received. All other adjustments will be stored in memory for the current input signal.

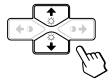
1 Press the MENU button.
The MENU OSD appears.

2 Press the ☼↓/↑ and ◑←/→ buttons to select " GEOM," and press the MENU button again.
The GEOMETRY OSD appears.



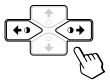


3 Press the ☼↓/↑ buttons to select the item you want to adjust.



Select	To
ROTATION	adjust the picture rotation
PINCUSHION	adjust the picture sides
PIN BALANCE	adjust the picture side balance
KEYSTONE	adjust the picture width
KEY BALANCE	adjust the picture shape balance

4 Press the ◑←/→ buttons to adjust the settings.



For	Press
ROTATION	→ . . . to rotate the picture clockwise
	← . . . to rotate the picture counterclockwise
PINCUSHION	→ . . . to expand the picture sides
	← . . . to contract the picture sides
PIN BALANCE	→ . . . to move the picture sides to the right
	← . . . to move the picture sides to the left
KEYSTONE	→ . . . to increase the picture width at the top
	← . . . to decrease the picture width at the top
KEY BALANCE	→ . . . to move the top of the picture to the right
	← . . . to move the top of the picture to the left

The OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

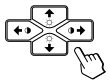
To reset, press the RESET button while the OSD is on.
The selected item is reset to the factory setting.

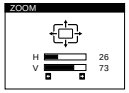
Using the ZOOM On-screen Display

The ZOOM settings allow you to enlarge or reduce the picture.
Once the setting is adjusted, it will be stored in memory for the current input signal.

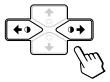
1 Press the MENU button.
The MENU OSD appears.

2 Press the ☼↓/↑ and ◑←/→ buttons to select " ZOOM," and press the MENU button again.
The ZOOM OSD appears.





3 Press the ◑←/→buttons to adjust the picture zoom.



→ . . . to enlarge the picture
← . . . to reduce the picture

The OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

To reset, press the RESET button while the OSD is on.

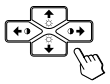
Note
The picture zoom adjustment will stop as soon as either the horizontal or vertical size reaches its maximum or minimum value.

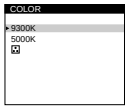
Using the COLOR On-screen Display

You can change the monitor's color temperature. For example, you can change the colors of a picture on the screen to match the actual colors of the printed picture.
Once the setting is adjusted, it will be stored in memory for all input signals received.

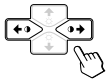
1 Press the MENU button.
The MENU OSD appears.

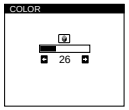
2 Press the ☼↓/↑ and ◑←/→ buttons to select " COLOR," and press the MENU button again.
The COLOR OSD appears.





If you are using Graphic Picture Enhancement (GPE)
If you are in one of the GPE modes, the following COLOR OSD appears when " COLOR" is selected.





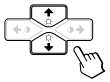
This OSD allows you to reduce the color temperature from 11,000K to 9,300K. Press the ◑←/→ buttons to adjust the color temperature.

For more information on using GPE, see "Selecting the Graphic Picture Enhancement (GPE) Mode" on page 16.

(continued)

EN

3 Press the ☼↓/↑ buttons to select the color temperature.



There are two color temperature modes in the OSD.
The preset adjustments are 9,300K and 5,000K.

Selecting your own color temperature between 9,300K and 5,000K
Press the ☼↓/↑ buttons to select " (VARIABLE)" and adjust by pressing the ◑←/→ buttons.

→ . . . for a higher temperature (bluish)
← . . . for a lower temperature (reddish)

The OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

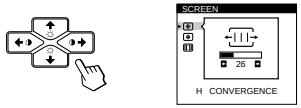
To reset, press the RESET button while the OSD is on. The selected color temperature is reset to the factory settings.

Using the SCREEN On-screen Display

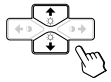
Adjust convergence settings to eliminate red or blue shadows that may appear around objects on the screen.
Adjust the CANCEL MOIRE function to eliminate wavy or elliptical lines that may appear on the screen.
Once the setting is adjusted, it will be stored in memory for all input signals received.

1 Press the MENU button.
The MENU OSD appears.

2 Press the ☼↓/↑ and ◑←/→ buttons to select " SCREEN," and press the MENU button again.
The SCREEN OSD appears.



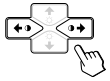
3 Press the ☼↓/↑ buttons to select the item you want to adjust.



Select	To
H CONVERGENCE	adjust the horizontal convergence
V CONVERGENCE	adjust the vertical convergence
CANCEL MOIRE	eliminate elliptical or wavy lines on the screen
* MOIRE ADJUST	adjust the degree of moire cancellation

* CANCEL MOIRE must be "ON" for " (MOIRE ADJUST)" to appear on the screen.

4 Press the ◑←/→ buttons to adjust the settings.



For	Press
H CONVERGENCE	→ . . . to shift red shadows to the right and blue shadows to the left ← . . . to shift red shadows to the left and blue shadows to the right
V CONVERGENCE	→ . . . to shift red shadows up and blue shadows down ← . . . to shift red shadows down and blue shadows up
CANCEL MOIRE	→ . . . to turn CANCEL MOIRE "ON" ← . . . to turn CANCEL MOIRE "OFF"
MOIRE ADJUST	→ . . . to increase the moire cancellation effect ← . . . to decrease the moire cancellation effect

The OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

To reset, press the RESET button while the OSD is on.
The selected item is reset to the factory setting.

Using the OPTION On-screen Display

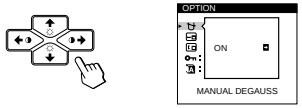
The OPTION OSD allows you to manually degauss the screen and adjust settings such as the OSD position and OSD language. It also allows you to lock the controls.

Degaussing the screen

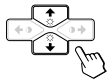
The monitor screen is automatically degaussed (demagnetized) when the power is turned on.
You can also manually degauss the monitor.

1 Press the MENU button.
The MENU OSD appears.

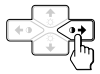
2 Press the ☼↓/↑ and ◑←/→ buttons to select " OPTION," and press the MENU button again.
The OPTION OSD appears.



3 Press the ☼↓/↑ buttons to select " (MANUAL DEGAUSS)."



4 Press the ◑ → button.
The screen is degaussed for about 5 seconds.



If you need to degauss the screen a second time, wait for at least 20 minutes before repeating the steps above.

The OPTION OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

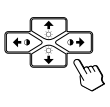
EN

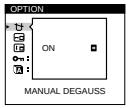
Changing the on-screen display position

You can change the OSD position (for example, when you want to adjust the picture behind the OSD).

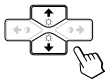
1 Press the MENU button.
The MENU OSD appears.

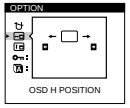
2 Press the ☼/↓/↑ and ◑/←/→ buttons to select " OPTION," and press the MENU button again.
The OPTION OSD appears.



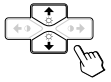


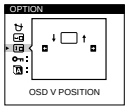
3 Press the ☼/↓/↑ buttons to select " (OSD H POSITION)" or " (OSD V POSITION)."
Select " (OSD H POSITION)" to adjust the horizontal position.



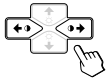


Select " (OSD V POSITION)" to adjust the vertical position.





4 Press the ◑/←/→ buttons to move the OSD to the desired position.



The OPTION OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

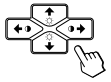
To reset, press the RESET button while the OSD is on.

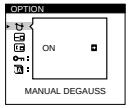
Locking the controls

The control lock function disables all of the buttons on the front panel except the ⏻ (power) switch and MENU button.

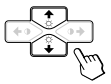
1 Press the MENU button.
The MENU OSD appears.

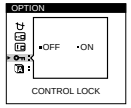
2 Press the ☼/↓/↑ and ◑/←/→ buttons to select " OPTION," and press the MENU button again.
The OPTION OSD appears.



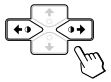


3 Press the ☼/↓/↑ buttons to select " (CONTROL LOCK)."





4 Press the ◑/←/→ buttons to select "ON."



The OPTION OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

Once you select "ON," you cannot select any items except "EXIT" and " OPTION" in the MENU OSD.
If you press any button other than the ⏻ (power) switch and MENU button, the mark appears on the screen.

To cancel the control lock

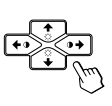
Repeat steps 1 through 3 above and press the ◑/←/→ buttons to select "OFF."

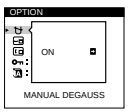
Selecting the on-screen display language

English, French, German, Spanish and Japanese versions of the OSDs are available.

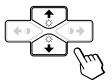
1 Press the MENU button.
The MENU OSD appears.

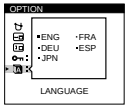
2 Press the ☼/↓/↑ and ◑/←/→ buttons to select " OPTION," and press the MENU button again.
The OPTION OSD appears.



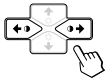


3 Press the ☼/↓/↑ buttons to select " (LANGUAGE)."





4 Press the ◑/←/→ buttons to select the desired language.



ENG: English, FRA: French, DEU: German,
ESP: Spanish, or JPN: Japanese.

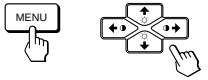
The OPTION OSD automatically disappears after about 30 seconds.
To close the OSD, press the MENU button again.

To reset to English, press the RESET button while the OSD is on.

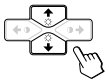
Resetting the Adjustments

Resetting an adjustment item

1 Press the MENU, ☼/↓/↑ and ◑/←/→ buttons to select the OSD containing the item you want to reset.



2 Press the ☼/↓/↑ buttons to select the item you want to reset.



3 Press the RESET button.

Resetting all of the adjustment data for the current input signal

When there is no OSD displayed, press the RESET button.
All of the adjustments data for the current input signal is reset to the factory settings.
Note that adjustment data not affected by changes in input signal (OSD language , OSD position and the control lock function) is not reset to the factory settings.

Resetting all of the adjustment data for all input signals

Press and hold the RESET button for more than two seconds.
All of the adjustment data, including the brightness and contrast, is reset to the factory settings.

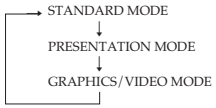
Selecting the Graphic Picture Enhancement (GPE) Mode

The Graphic Picture Enhancement (GPE) button allows you to automatically change the characteristics of the picture on the screen to match the use of your monitor. Simply press the GPE button to scroll between the three modes.

1 Turn on the monitor and computer.

2 Press the GPE button to set the mode.

Each time you press the GPE button, the mode appears on the screen and changes as follows.



The STANDARD MODE is ideal for spreadsheets, word processing, and other text oriented applications.

The PRESENTATION MODE is useful for presentation programs that require vivid colors.

The GRAPHICS/VIDEO MODE gives movies and games enhanced visual appeal by increasing the sharpness and brightness.

The selected mode indication appears on the screen for about 3 seconds.

If the screen appears too white, adjust the color temperature as explained in "Using the COLOR On-screen Display" on page 11.

Note

The PRESENTATION MODE and GRAPHICS/VIDEO MODE may produce ghost images when displaying text oriented applications. These modes change the brightness of the picture dynamically according to changes in moving pictures. If ghost images appear, set the GPE to STANDARD MODE.

Preset and User Modes

The monitor has factory preset modes for the 9 (CPD-100GS) or 10 (CPD-200GS) most popular industry standards for true "plug and play" capability.

Recommended horizontal and vertical timing conditions

Horizontal sync width duty should be 1.0 µsec of total horizontal time.
Horizontal blanking width should be ≥3.0 µsec for CPD-200GS.
Horizontal blanking width should be ≥3.6 µsec for CPD-100GS.
Vertical blanking width should be ≥500 µsec for both CPD-100GS and CPD-200GS.

Note for Windows® users

For Windows users, check your video board manual or the utility program which comes with your graphic board and select the highest available refresh rate to maximize monitor performance.

CPD-100GS

No.	Resolution (dots × lines)	Horizontal Frequency	Vertical Frequency	Graphics Mode
1	640 × 480	31.5 kHz	60 Hz	VGA Graphic
2	640 × 480	43.3 kHz	85 Hz	VESA
3	720 × 400	31.5 kHz	70 Hz	VGA Text
4	800 × 600	46.9 kHz	75 Hz	VESA
5	800 × 600	53.7 kHz	85 Hz	VESA
6	832 × 624	49.7 kHz	75 Hz	Macintosh 16" Color
7	1024 × 768	60.0 kHz	75 Hz	VESA
8	1024 × 768	68.7 kHz	85 Hz	VESA
9	1280 × 1024	64.0 kHz	60 Hz	VESA

CPD-200GS

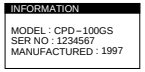
No.	Resolution (dots × lines)	Horizontal Frequency	Vertical Frequency	Graphics Mode
1	640 × 480	31.5 kHz	60 Hz	VGA Graphic
2	640 × 480	43.3 kHz	85 Hz	VESA
3	720 × 400	31.5 kHz	70 Hz	VGA Text
4	800 × 600	46.9 kHz	75 Hz	VESA
5	800 × 600	53.7 kHz	85 Hz	VESA
6	832 × 624	49.7 kHz	75 Hz	Macintosh 16" Color
7	1024 × 768	60.0 kHz	75 Hz	VESA
8	1024 × 768	60.2 kHz	75 Hz	Macintosh 19" Color
9	1024 × 768	68.7 kHz	85 Hz	VESA
10	1280 × 1024	80.0 kHz	75 Hz	VESA

Displaying the monitor's information

You can display the model name, serial number and year of manufacture using the monitor's INFORMATION OSD.

Press and hold the MENU button for 5 seconds.
The INFORMATION OSD appears.

Example:



The INFORMATION OSD includes the model name, serial number and manufactured year.

The OSD automatically disappears after about 30 seconds.

Power Saving Function

This monitor has three modes of reduced power consumption. By sensing the absence of video signal coming from the computer, it reduces power consumption as follows.

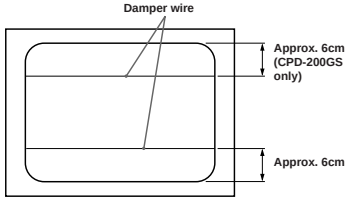
	Power consumption mode	Power consumption	Recovery time	⏻ indicator
1	Normal operation	≤ 120 W (CPD-200GS) ≤ 110 W (CPD-100GS)	—	Green
2	Standby (1st mode)	≤ 15 W	Approx. 5 sec.	Green and orange alternate
3	Suspend (2nd mode)	≤ 15 W	Approx. 5 sec.	Green and orange alternate
4	Active-off (3rd mode)	≤ 8 W	Approx. 15 sec.	Orange
5	Power-off	0 W	—	Off

Note

If the video signal cable is not connected, the "NO INPUT SIGNAL" message (page 18) appears. After 30 seconds, the power saving function automatically puts the monitor into the active-off mode and the ⏻ indicator lights up orange. Once the horizontal and vertical sync signals are detected, the monitor automatically resumes its normal operation mode.

Damper Wires

When viewing a white background, very thin horizontal lines are visible on the screen as shown below. These lines are damper wires.
The Trinitron tube has a vertically striped aperture grille inside. The aperture grille allows more light to pass through to the screen giving the Trinitron CRT more color and brightness.
These damper wires are attached to the aperture grille to prevent vibration of the aperture grille and keep the screen image constantly stable.



Plug & Play

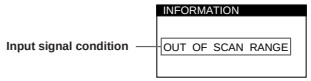
This monitor complies with the DDC™1 and DDC2B Display Data Channel (DDC) standards of VESA.
When a DDC1 host system is connected, the monitor synchronizes with the V. CLK in accordance with the VESA standards and outputs the EDID (Extended Display Identification Data) to the data line.
When a DDC2B host system is connected, the monitor automatically switches to the appropriate standard.

DDC™ is a trademark of the Video Electronics Standard Association.

EN

Warning Messages

If there is something wrong with the input signal, one of the following messages appears.



The input signal condition

"OUT OF SCAN RANGE" indicates that the input signal is not supported by the monitor's specifications.

"NO INPUT SIGNAL" indicates that no signal is input.

To solve these problems, see "Troubleshooting" below.

Troubleshooting

This section may help you isolate the cause of a problem and as a result, eliminate the need to contact technical support.

Symptom	Check these items
No picture	
If the ⏻ indicator is not lit	• Check that the power cord is properly connected. • Check that the ⏻ (power) switch is in the "on" position.
If the "NO INPUT SIGNAL" message appears on the screen, or if the ⏻ indicator is either orange or alternating between green and orange	• Try pressing any key on the computer keyboard. • Check that your computer power switch is in the "on" position. • Check that the video signal cable is properly connected and all plugs are firmly seated in their sockets. • Ensure that no pins are bent or pushed in the HD15 video input connector. • Check that the video board is completely seated in the proper bus slot.
If the "OUT OF SCAN RANGE" message appears on the screen	• Check that the video frequency range is within that specified for the monitor. Horizontal: 30 – 70 kHz (CPD-100GS), 30 – 85 kHz (CPD-200GS) Vertical: 50 – 120 Hz Refer to your computer's instruction manual to adjust the video frequency range. • If you are using a video signal cable adapter, check that it is the correct one.
If no message is displayed and the ⏻ indicator is green or flashing orange	• See "Self-diagnosis Function" (page 20).
Picture is scrambled	• Check your graphics board manual for the proper monitor setting. • Check this manual and confirm that the graphics mode and the frequency you are trying to operate at is supported. Even if the frequency is within the proper range, some video boards may have a sync pulse that is too narrow for the monitor to sync correctly.
Color is not uniform	• Degauss the monitor (page 13). If you place equipment which generates a magnetic field, such as a loudspeaker, near the monitor, or you change the direction of the monitor, color may lose uniformity. The degauss function demagnetizes the metal frame of the CRT to obtain a neutral field for uniform color reproduction. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result.
You cannot adjust the monitor with the buttons on the front panel	• If the control lock function is set to on, set it to off using the OPTION OSD (page 14).

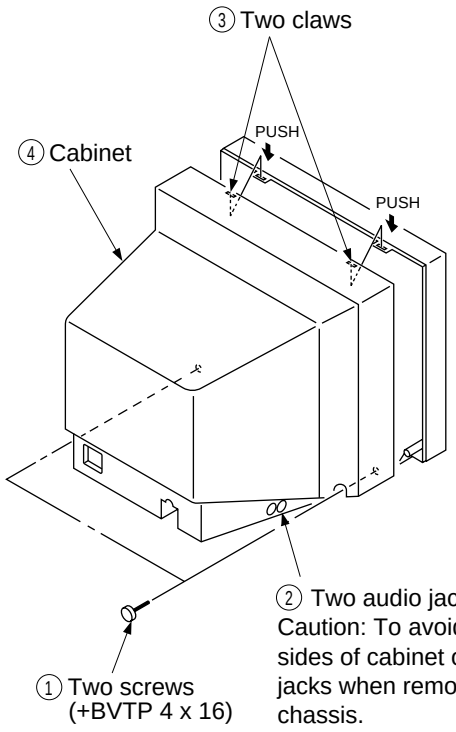
Symptom	Check these items
Screen image is not centered or sized properly	• Adjust the size or centering (page 9). • Some video modes do not fill the screen to the edges. This problem tends to occur with certain video boards.
Edges of the image are curved	• Adjust the geometry (page 10).
White lines show red or blue shadows at edges	• Adjust the convergence (pages 12 – 13).
Picture is fuzzy	• Adjust the contrast and brightness (page 8). • Degauss the monitor (page 13). If you place equipment which generates a magnetic field, such as a loudspeaker, near the monitor, or you change the direction of the monitor, color may lose uniformity. The degauss function demagnetizes the metal frame of the CRT to obtain a neutral field for uniform color reproduction. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result. • If red or blue shadows appear along the edges of images, adjust the convergence (pages 12 – 13). • If the moire is cancelled, the picture may become fuzzy. Decrease the moire cancellation effect (pages 12 – 13).
Picture bounces or has wavy oscillations	• Isolate and eliminate any potential sources of electric or magnetic fields. Common causes for this symptom are electric fans, fluorescent lighting or laser printers. • If you have another monitor close to this monitor, increase the distance between them to reduce the interference. • Try plugging the monitor into a different AC outlet, preferably on a different circuit. • Try the monitor on a different computer in a different room.
Picture is flickering	• Set the refresh rate on the computer to obtain the best possible picture by referring to your computer's manual.
Picture appears to be ghosting	• Eliminate the use of video cable extensions and/or video switch boxes if this symptom occurs. Excessive cable length or a weak connection can produce this symptom.
Wavy or elliptical (moire) pattern is visible	• Cancel the moire (pages 12 – 13). The moire may be modified depending on the connected computer. • Due to the relationship between resolution, monitor dot pitch and the pitch of some image patterns, certain screen backgrounds sometimes show moire. Change your desktop pattern.
Two fine horizontal lines (wires) are visible	• These wires stabilize the vertically striped aperture grille (page 17). This aperture grille allows more light to pass through to the screen giving the Trinitron CRT more color and brightness.
Hum is heard right after the power is turned on	• When the power is turned on, the auto-degauss cycle is activated. While the auto-degauss cycle is activated, a hum may be heard. The same hum is heard when the monitor is manually degaussed. This is not a malfunction.

• If the problem persists, call your authorized Sony dealer from a location near your monitor.
• Note the model name and the serial number of your monitor. Also note the make and name of your video board.

EN

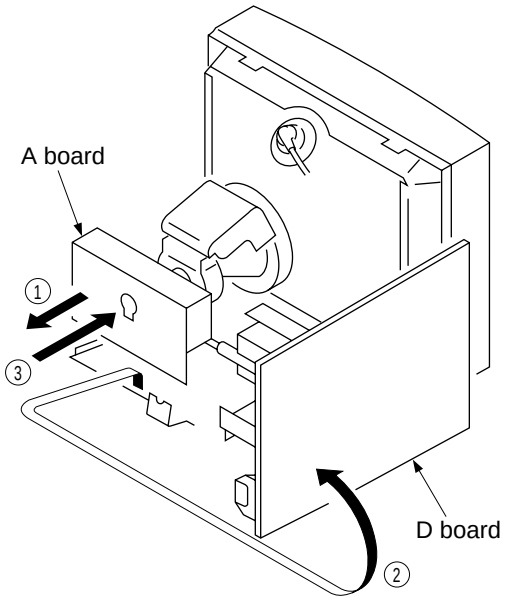
SECTION 2
DISASSEMBLY

2-1. CABINET REMOVAL

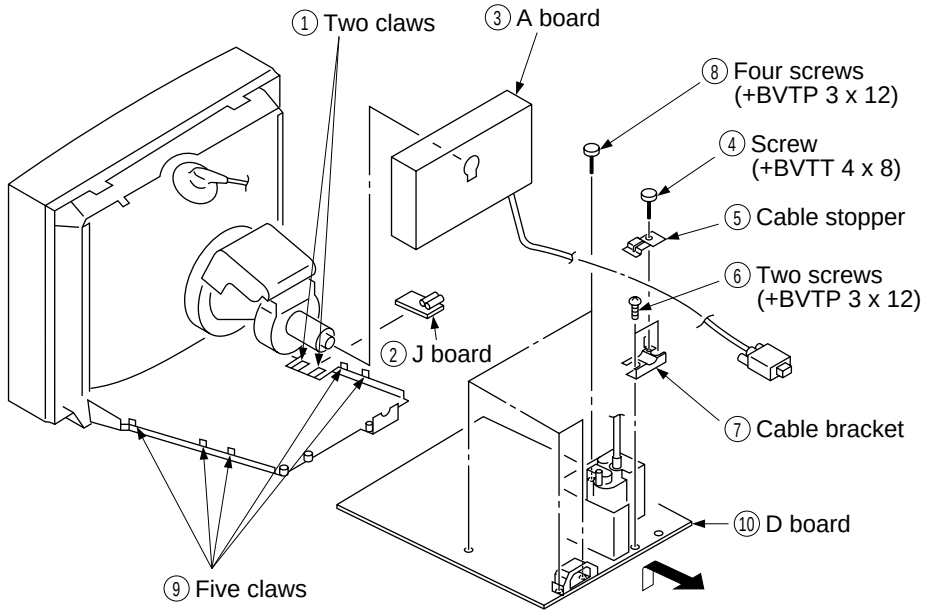


Caution: To avoid breakage, gently pull sides of cabinet out and over the audio jacks when removing cabinet from chassis.

2-2. SERVICE POSITION

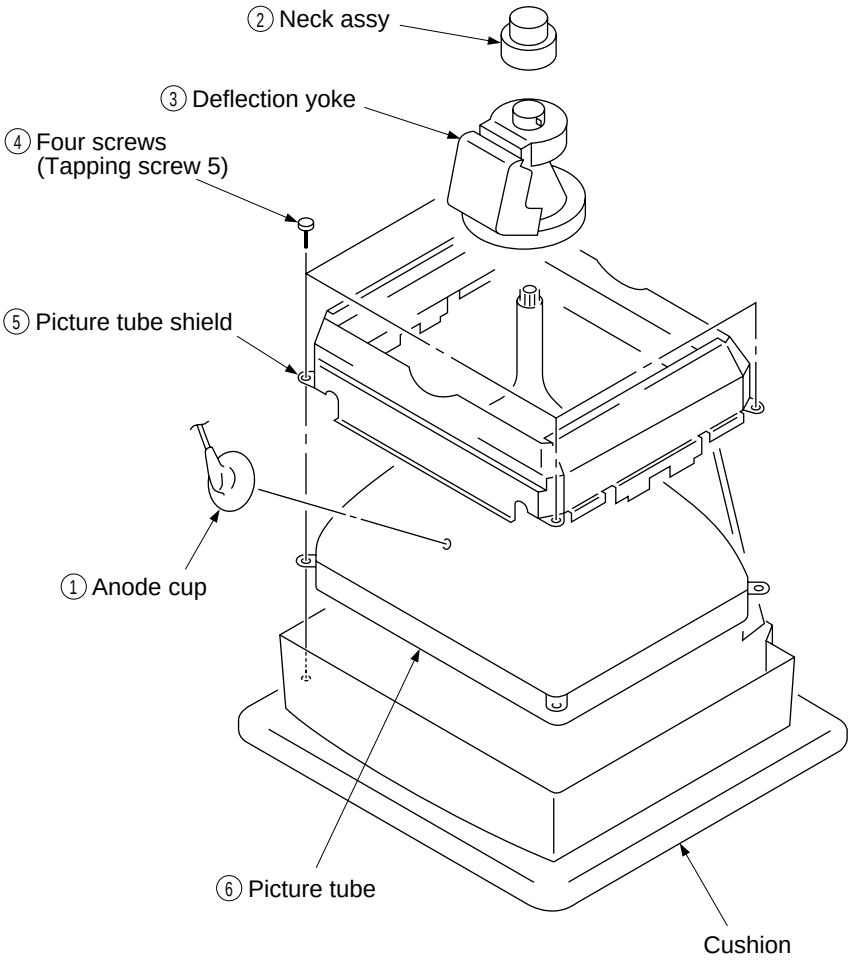


2-3. D, A AND J BOARDS REMOVAL



2-4. PICTURE TUBE REMOVAL

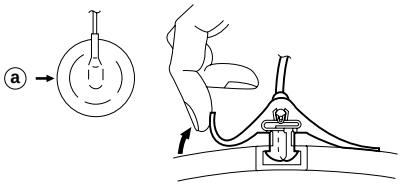
• Remove the D, A and J boards (Refer to 2-3.)



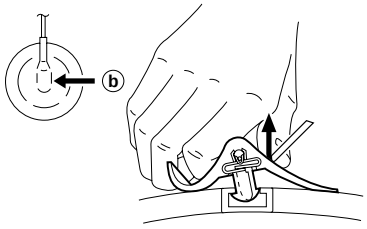
• REMOVAL OF ANODE-CAP

NOTE: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

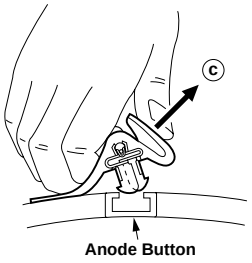
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



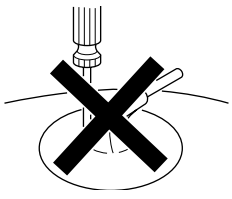
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

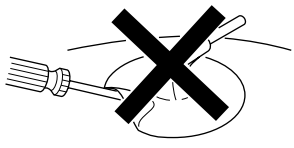


③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with shartp shaped material!
② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.
③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECTION 3
SAFETY RELATED ADJUSTMENT

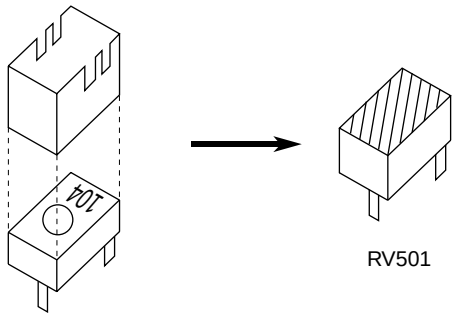
When replacing parts shown in the table below, the following operational chacks must be performed as a safety precaution against X-ray emissions from the unit.

D BOARD
Part Replaced (⋈)
RV501 (HV ADJ)
Part Replaced (◪)
IC501, IC605, IC901, D517, C535, C540, C541, C542, C544, C553, C554, C555, C558, C561, R545, R546, R547, R548, R549, R550, R552, R564, R567, RV501, T501 (FBT)

* Allow the unit to warm up for one minute prior to checking the following conditions:

a) HV Regulator Check

1) Input white cross hatch signal. (fH = 64 kHz)
2) Minimum CONT and BRT controls.
3) Cut off Screen VR (G2).
4) Input voltage: 120 ± 2 VAC
5) Confirm that the voltage is within the voltage range shown below.
   Standard voltage: 25.0 ± 0.5KVDC
6) When replacing components identified by ◪, make sure to recheck the High Voltage.
7) Verify the High Voltage as shown above (25 ± 0.5KVDC) is within specification. If not, set H. SIZE data at minimum (–127) and then adjust RV501 on "D" Board.
8) After adjusting the High Voltage within specification, put the RV cover on RV501 as shown below and apply sufficient amount of RTV around RV501.



RV501

b) HV Hold-Down Check

1) Using an external DC Power supply, apply the voltage shown below between cathode of D517 on "D" Board and GND, and confirm that the HV Hold-Down circuit works. (Raster disappears)
   Apply DC Voltage: 31.4 ± 0.01 VDC

Check Condition

- Input voltage : 120 ± 2 VAC
- Input signal :(fH = 64 kHz), White Cross Hatch
- Controls : CONT (max) & BRT (center)
- B+ Voltage : 182.5 ± 3.0 VDC

c) Beam Protector Check (Software logic)

1) Using an external DC power supply, apply the voltage 8.8 ± 0.01 VDC between pin ⑪ of FBT (T501) and GND, and confirm that the voltage across C541 is 3.7 VDC or less.

Check Condition

- Input voltage : 120 ± 2 VAC
- Input signal :(fH = 64 kHz), White Cross Hatch
- Controls : CONT (max) & BRT (center)

d) B+ MAX. Check

1) Input white cross hatch (fH = 64 kHz) signal.
2) CONT (max) & BRT (center)
3) Input voltage: 120 ± 2 VAC
   Note: Use NF power supply or make sure that distortion factor is 3% or less.
4) Confirm that the B+ voltage is within the voltage range shown below.
   Standard voltage: 182.5 ± 3.0 VDC

SECTION 4
ADJUSTMENTS

● Landing Rough Adjustment

1. Enter the full white signal.
2. Set the contrast to “CONT”=255.
3. Make the screen monogreen.

Note: Off the outputs from R ch and B ch of SG.

4. Reverse the DY, and adjust coarsely the purity magnet so that a green raster positions in the center of screen.
5. Moving the DY forward, adjust so that an entire screen becomes monogreen.
6. Adjust the tilt of DY, and fix lightly with a clamp.

Note: "TILT" shall be set at 0.

● Landing Fine Adjustment

1. Put the set inside the Helmholtz coil.
2. Input the single green signal and set the CONT control to MAX.

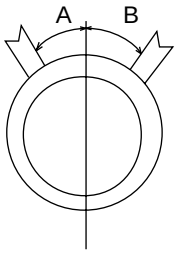
Note: Set to Σ 1k=300 µA with the signal green signal, and after aging for about 30 minutes, adjust so that it is exactly this value.

3. Demagnetize the CRT surface with the hand degausser , and perform auto degaussing.

Note: Adjust in s non-magnetic field.

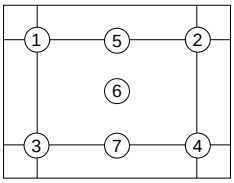
4. Attach the wobbling coil to the designated part of the CRT neck.
5. Attach the sensor of the landing adjustment unit on the CRT surface.
6. Adjust the DY position and purity, and the DY tilt, and landing of the center and 4 corners with the landing checker.

Purity



A = B

<Specification>

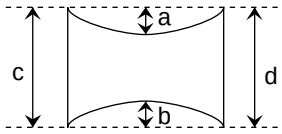


Adjust the green of corners ① to ④, and center ⑥ to ±5 µm, and red and blue to within ±7 µm of green, and the difference between red and blue to within ±10 µm.
Adjust the green of ⑤ and ⑦ to within ±10 µm, and red and blue to within ±7 µm of green, and the difference between red and blue to within ±10 µm.

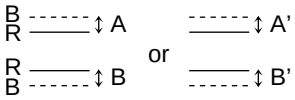
(Set each corner to 1st frame of the crosshatch.)

7. For the up/down and left/right swing, swing the DY and insert a wedge so that the up and down pins are equal at the top and bottom and the horizontal trapezoid is equal at the left and right. Insert the wedge firmly so that the DY does not shake.

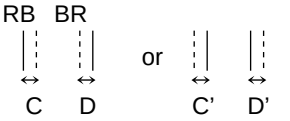
Signals: Inverted crosshatch signal (monochrome G)
and crosshatch signals (B and R)



“a” and “b” must be equal, and “c” and “d” must be almost equal.

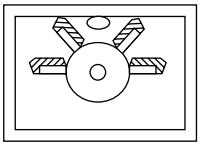


A and B, or A’ and B’ must be almost equal.



C and D, or C’ and D’ must be almost equal.

<How to drive in wedges>



Drive in wedges as shown in the left figure, and apply RTV as shown with hatched lines.

← As viewed from a neck side

8. Check the landing of each corner, and if they do not satisfy the specification, paste a Disk-Mg onto the funnel and adjust.

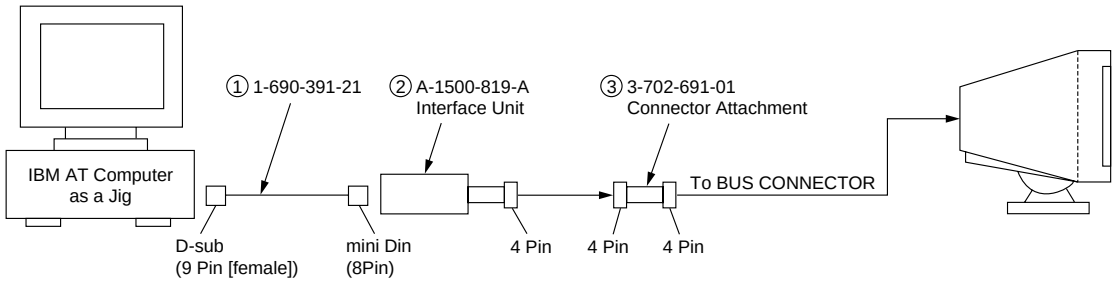
Note:

(1) Do not paste more than 2 magnets to one corner.
(2) Paste within 80 to 100 mm from the DY on the diagonal line of the magnet.
(3) If using the magnet, be sure to demagnetize with the hand degausser and check.

9. Remove the sensor and wobbling coil.
10. Switch the signal to R.G.B., and check that each color is pure.
11. Check that the DY is not tilting, and fix the purity Mg with a white pen.
12. Fasten DY with screw.

Note: Torque 20 ±2kg·cm

Connect the communication cable of the computer to the connector located on the D board on the monitor. Run the service software and then follow the instruction.



*The parts above (① ~ ③) are necessary for DAS adjustment.

● Convergence Rough Adjustment

1. Enter the white crosshatch signal (white lines on black).
2. Adjust roughly the horizontal and vertical convergence at four-pole magnet.
3. Adjust roughly HMC and VMC at six-pole magnet.
   Standard: ± 0.1mm (In the center of screen)
4. Make rough adjustment of the H direction convergence by usig H. STAT VR (RV001 of A board).

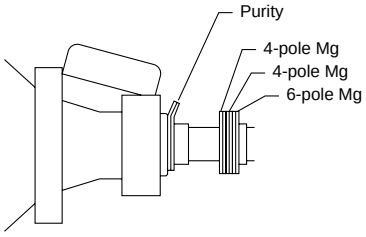


Fig. 1

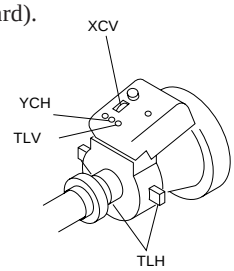
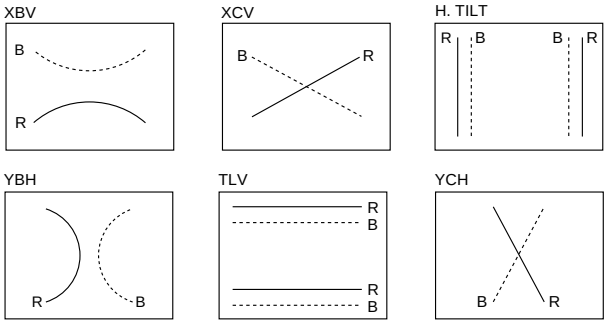


Fig. 2



<6 Pole Magnet>

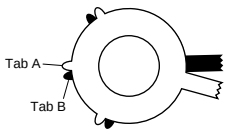


Fig. 3

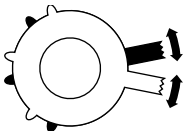


Fig. 4

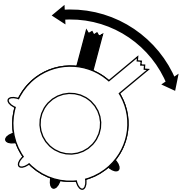
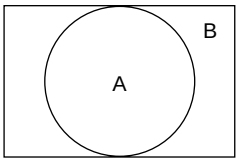


Fig. 5

● Convergence Specification

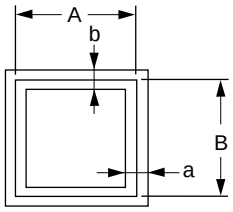


MODE	All mode
A	0.30 mm
B	0.30 mm

● White Balance Adjustment Specification

(1) 9300K
x = 0.283 ± 0.005
y = 0.298 ± 0.005
(2) 5000K
x = 0.345 ± 0.005
y = 0.358 ± 0.005

● Vertical and Horizontal Position and Size Specification

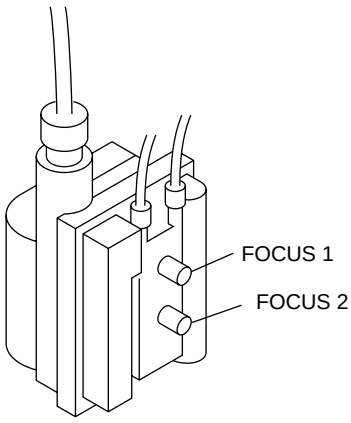


MODE	All mode
A	312 mm
B	234 mm

a ≦ 3.0 mm
b ≦ 2.5 mm

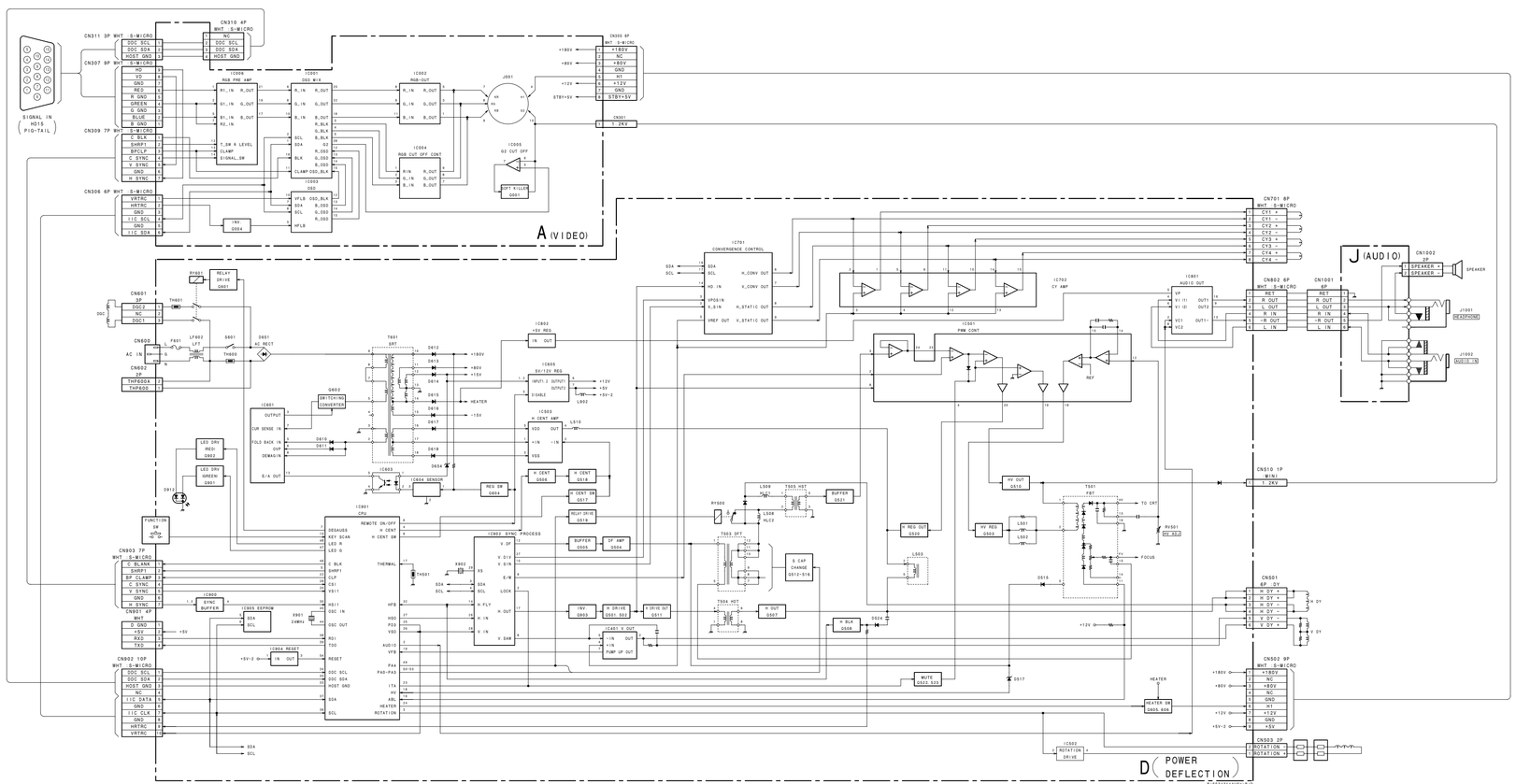
● Focus adjustment

Adjust the focus volume 1 and 2 for the optimun focus.

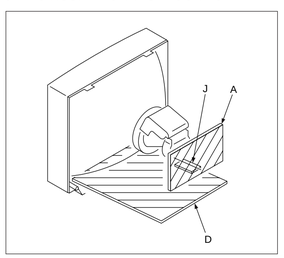


SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in µF unless otherwise noted. (pF: µµF) Capacitors without voltage indication are all 50 V.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm Rating electrical power 1/4 W (CHIP : 1/10 W)

- All resistors are in ohms.
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.
- The components identified by **H** in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. (See page 3-1)
- When replacing the part in below table, be sure to perform the related adjustment.

D BOARD
Part Replaced (**H**)
RV501 (HV ADJ)
Part Replaced (◪)
IC501, IC605, IC901, D517, C535, C540, C541, C542, C544, C553, C554, C555, C558, C561, R545, R546, R547, R548, R549, R550, R552, R564, R567, RV501, T501 (FBT)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- All voltages are in V.
- Readings are taken with a 10 M digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- : Can not be measured.
- Circled numbers are waveform references.
- : B + bus.
- : B – bus.

Terminal name of semiconductors in silk screen printed circuit (⚹)

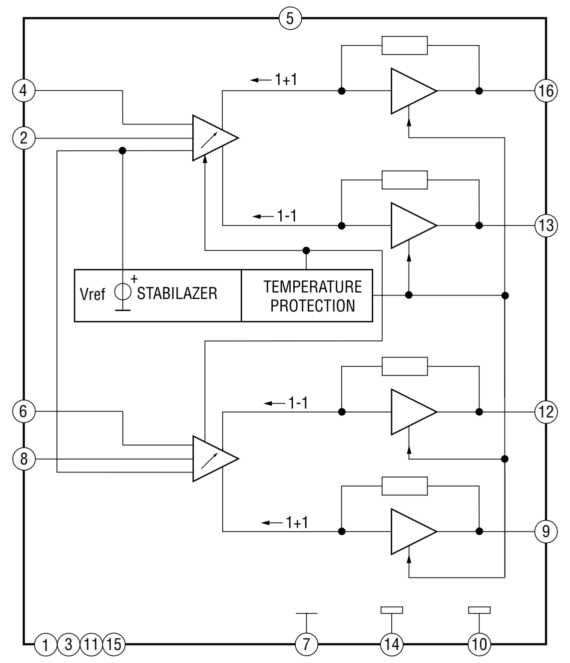
	Device	Printed symbol	Terminal name	Circuit
①	Transistor	T	Collector / Base / Emitter	
②	Transistor	—	Collector / Base / Emitter	
③	Diode		Cathode / Anode	
④	Diode	T	Cathode / Anode / (NC)	
⑤	Diode	—	Cathode / Anode / (NC)	
⑥	Diode	T	Common / Anode / Cathode	
⑦	Diode	—	Common / Anode / Cathode	
⑧	Diode	T	Common / Anode / Anode	
⑨	Diode	—	Common / Anode / Anode	
⑩	Diode	T	Common / Cathode / Cathode	
⑪	Diode	—	Common / Cathode / Cathode	
⑫	Diode	‖	Anode / Cathode / Anode / Cathode / Anode	
⑬	Transistor (FET)	‖	Drain / Source / Gate	
⑭	Transistor (FET)	⊢	Drain / Source / Gate	
⑮	Transistor (FET)	‖	D Source / D Drain / D Gate	
⑯	Transistor	‖	D Emitter / D Collector / D Base	
–	Discrete semiconductor			

(Chip semiconductors that are not actually used are included.)

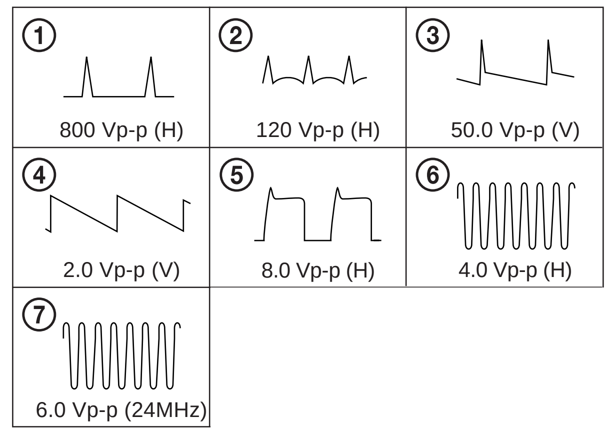
VM-3.5

(1) Schematic Diagrams of D and J Boards

• D BOARD IC801 TDA7053A



• D BOARD WAVEFORMS



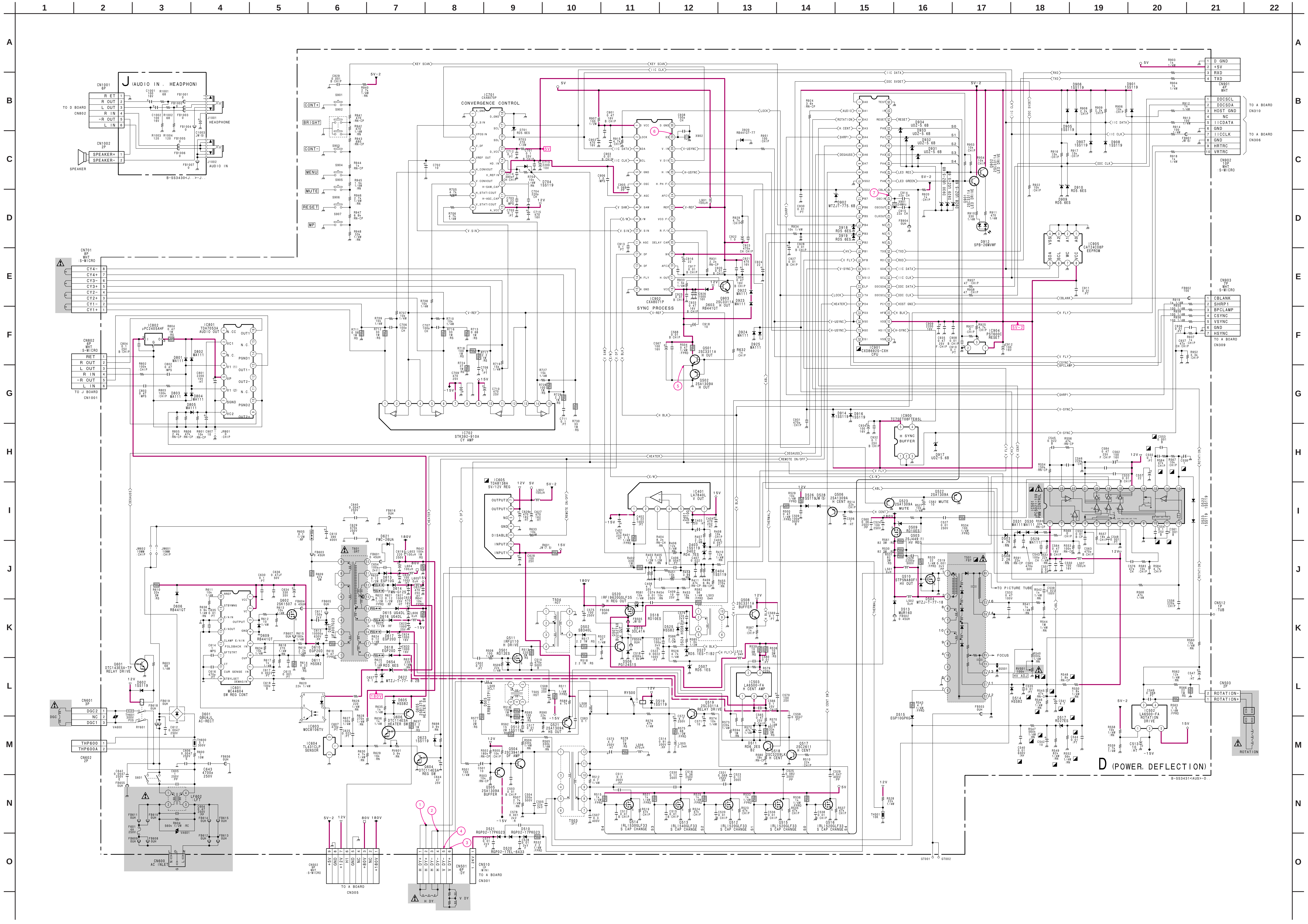
• D BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]
IC401	2	*
	3	14.2
	4	1.6
	5	1.6
	7	-13.8
IC501	1	11.9
	2	4.3
	3	4.3
	4	5.8
	5	8.8
	6	5.1
	8	0.1
	10	8.3
	11	4.5
	12	5.8
	13	5.8
	14	5.8
	15	6.0
	16	11.3
	18	7.7
	19	8.9
	20	7.0
	22	4.3
	23	4.3
	24	4.3
IC502	1	1.0
	2	1.0
	4	-1.6
IC503	1	73.6
	2	74.1
	4	74.2
IC601	3	1.6
	5	1.2
	6	1.3
	7	0.1
	8	0.3
	10	2.6
	11	2.4
	13	1.8
	14	0
	16	2.5
IC603	1	7.2
	2	6.1
	5	1.8
IC604	1	2.4
	3	6.1
IC605	3	4.7
IC606	1	1.0
	3	0
	4	0
IC651	1	0
	2	1.3
	3	17.6
	5	2.5
	7	0.2
	8	11.1
	10	17.3
IC701	2	5.0
	3	5.0
	5	5.0
	6	4.9
	7	4.9
	8	4.8
	9	5.0
	11	4.3
	12	4.9
	13	5.0
	14	3.8
	16	4.6
	17	4.4
IC702	1	0
	2	2.4
	3	5.0
	4	5.0
	5	2.5
	6	0.1
	10	0.6
	11	3.8
	12	5.0
	13	5.0
	14	3.8
	15	0.1

Ref.	Pin No.	Voltage [V]
IC801	2	0.8
	4	2.3
	5	4.9
	6	2.3
	8	0.8
	9	2.4
	13	2.4
	16	2.5
IC802	IN	5.0
	OUT	7.3
IC900	1	4.0
	2	4.0
	4	4.7
IC901	1	4.7
	2	1.5
	3	2.8
	4	3.6
	5	0
	6	4.7
	7	0
	9	0
	14	0
	15	4.7
	16	3.9
	17	2.2
	18	3.8
	19	-0.6
	20	4.2
	22	0.1
	23	4.7
	24	4.9
	25	0
	26	0
	27	4.7
	28	0.2
	30	4.7
	32	0.5
	33	4.9
	34	4.5
	35	*
	36	4.5
	37	4.6
	38	4.9
	39	4.9
	44	2.3
	45	2.1
	46	1.0
	47	4.5
	48	0.1
	49	0.4
	50	5.0
	51	0.4
	52	0.4
	53	0.4
	54	4.9
IC902	2	4.7
	3	4.6
	4	4.4
	6	3.9
	7	5.9
	8	5.0
	9	4.4
	10	4.9
	11	6.5
	12	4.6
	14	0.5
	17	0.4
	18	5.4
	20	10.4
	21	1.9
	22	0
	23	5.0
	24	4.5
	25	4.0
	26	4.6
	27	5.0
	28	0
	29	0.4
IC904	3	5.0
IC905	5	4.6
	6	4.3
Q501	B	5.6
	E	5.6

Ref.	Pin No.	Voltage [V]
Q502	B	5.6
	E	5.6
Q503	G	183.0
	D	73.1
Q504	B	1.3
	C	*
	E	0.7
Q505	B	0.6
	E	1.3
Q506	B	3.7
	E	4.9
Q507	B	-0.6
	C	74.6
Q508	B	-0.1
	E	11.9
Q510	G	8.8
	D	73.5
Q511	G	-10.9
	D	-0.3
Q512	G	0.4
	D	25.5
Q513	G	5.0
	D	0
Q514	G	0.4
	D	26.2
Q515	G	0.4
	D	24.9
Q516	G	0.4
	D	24.9
Q517	B	0
	C	72.0
Q518	B	4.9
	C	72.2
	E	4.3
Q519	B	0.4
	C	11.8
Q520	G	182.2
	D	74.7
Q522	B	5.3
	E	5.8
Q523	B	4.8
	E	5.3
Q601	B	0
	C	11.9
Q602	G	1.6
	D	385.0
	S	0.1
Q604	B	3.5
	C	0
Q605	B	6.5
	C	6.9
Q606	B	4.9
	C	0
Q651	G	11.0
	D	90.5
	S	0.2
Q652	B	15.5
	C	16.1
	E	16.2
Q901	B	4.5
	E	3.8
Q902	B	0.1
	E	0.5
Q903	B	0.4
	C	5.6

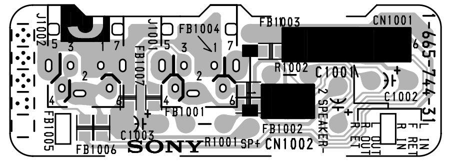
Schematic diagrams
D J boards ➡



J [AUDIO IN HEADPONE]

D [POWER DEFLECTION]

— J BOARD —



• D BOARD SEMICONDUCTOR LOCATION

IC		
IC401	C–3	
IC501	E–1	
IC502	A–2	
IC503	C–5	
IC601	B–4	
IC603	B–3	
IC604	B–3	
IC605	C–3	
IC701	E–2	
IC702	E–4	
IC801	B–1	
IC802	A–1	
IC900	C–1	
IC901	C–1	
IC902	D–1	
IC904	C–1	
IC905	B–1	

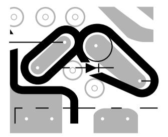
TRANSISTOR		*
Q501	D–1	–
Q502	D–1	–
Q503	C–6	–
Q504	E–6	–
Q505	E–2	–
Q506	A–1	–
Q507	D–5	–
Q508	C–4	–
Q510	C–7	–
Q511	C–6	–
Q512	D–2	–
Q513	E–3	–
Q514	D–3	–
Q515	D–2	–
Q516	D–2	–
Q517	A–2	–
Q518	A–2	–
Q519	D–2	–
Q520	C–4	–
Q521	D–3	–
Q522	E–2	–
Q523	E–1	–
Q601	C–5	–
Q602	A–4	–
Q604	B–2	–
Q605	B–2	–
Q606	B–2	–
Q652	A–5	①
Q901	C–2	–
Q902	C–2	–
Q903	D–1	–

DIODE		*
D401	C–3	–
D402	C–3	–
D403	C–2	–
D404	C–3	–
D501	C–6	–
D502	D–5	–
D504	C–7	–
D505	D–4	–
D506	D–5	–
D507	B–1	–
D509	C–6	–
D510	D–6	–
D511	C–4	–
D512	D–3	–
D513	C–6	–
D514	E–5	–
D515	E–7	–
D516	D–6	–
D517	E–7	–
D518	C–4	–
D519	D–3	–
D520	D–7	–
D521	D–7	–
D522	E–1	–
D523	E–1	–
D524	C–4	–
D525	C–4	–
D526	A–1	–
D527	C–4	–
D529	E–1	③
D530	E–2	③
D531	E–1	③
D601	B–6	–
D602	B–5	–
D603	D–2	–
D605	B–2	–
D606	B–5	–
D607	A–4	–
D609	B–4	–
D610	B–4	–
D611	B–4	–
D613	B–3	–
D614	A–3	–
D615	A–3	–
D616	A–3	–
D617	A–2	–
D618	A–3	–
D621	B–3	–
D622	B–3	–
D623	B-2	–
D654	B–3	–
D704	E–2	–
D801	A–1	③
D802	A–1	③
D803	A–1	③
D804	A–1	③
D805	A–1	③
D901	B–1	–
D902	C–2	–
D905	B–1	–
D906	B–1	–
D907	B–1	–
D908	B–1	–
D909	B–1	–
D910	B–1	–
D912	A–1	–
D914	D–2	–
D916	C–1	–
D917	C–1	3
D918	B–1	–
D919	D–1	–
D920	D–2	–
D922	D–1	3
D923	D–1	3
D924	C–2	3
D925	C–1	3
D928	C–2	3
D929	C–2	3
D930	C–2	3
D931	C–2	3
D932	C–2	3
D933	C–2	3
D934	C–2	3

VARIABLE RESISTOR	
RV501	E–7

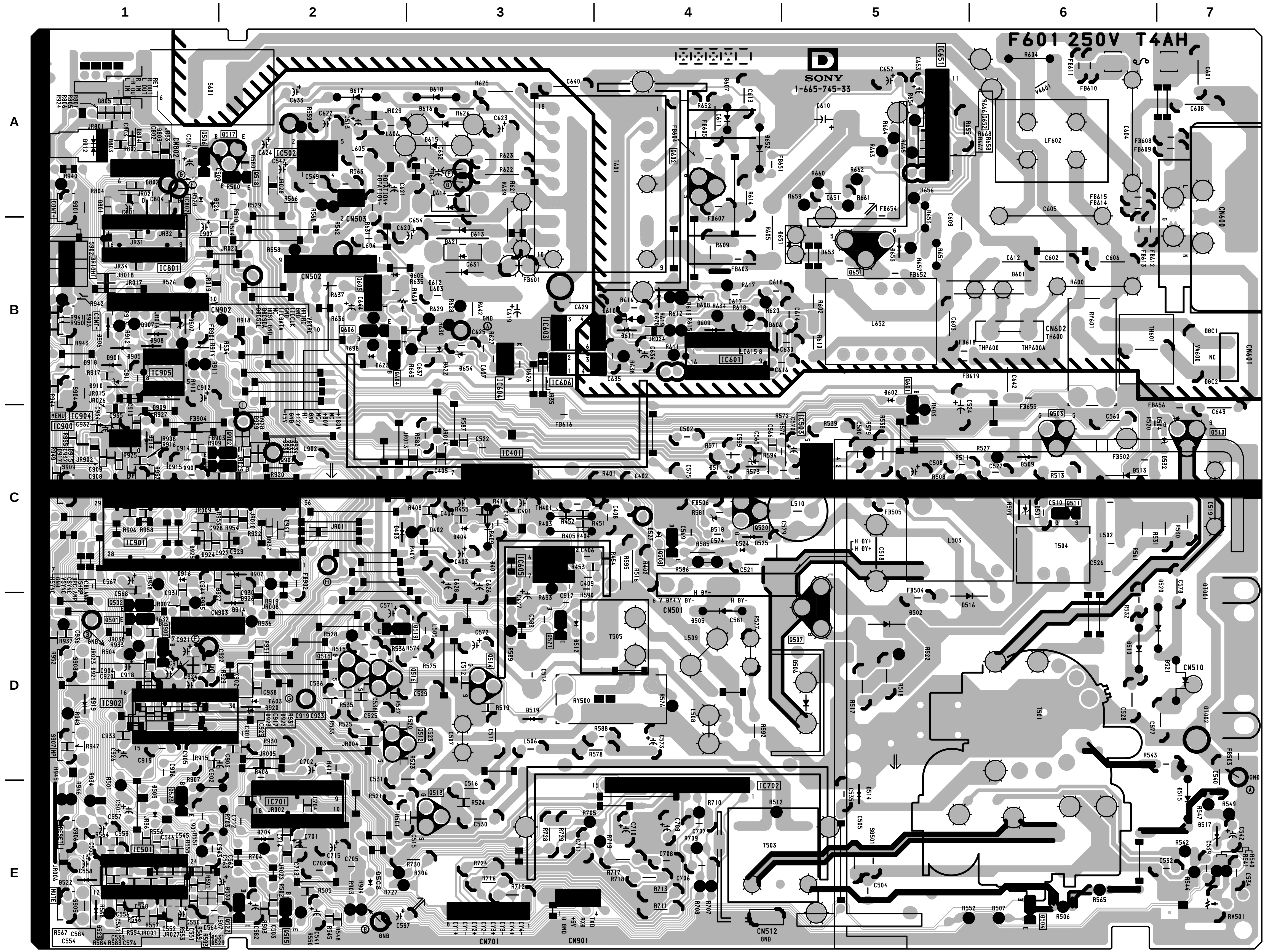
CRYSTAL	
X901	C–1
X902	D–2

*: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 5-4)



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

— D BOARD —

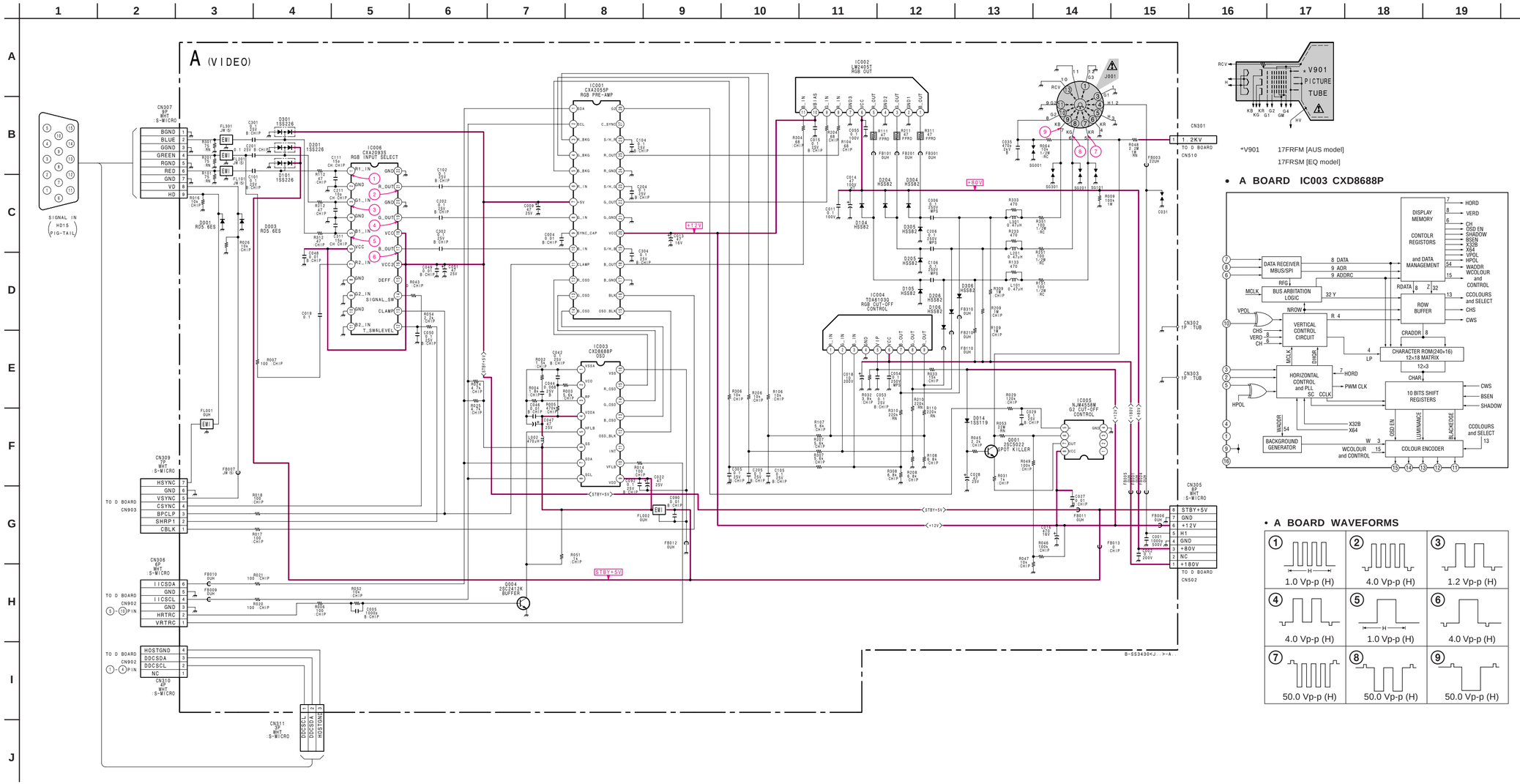


Schematic diagram
A board →

(2) Schematic Diagram of A Board

• A BOARD VOLTAGE LIST

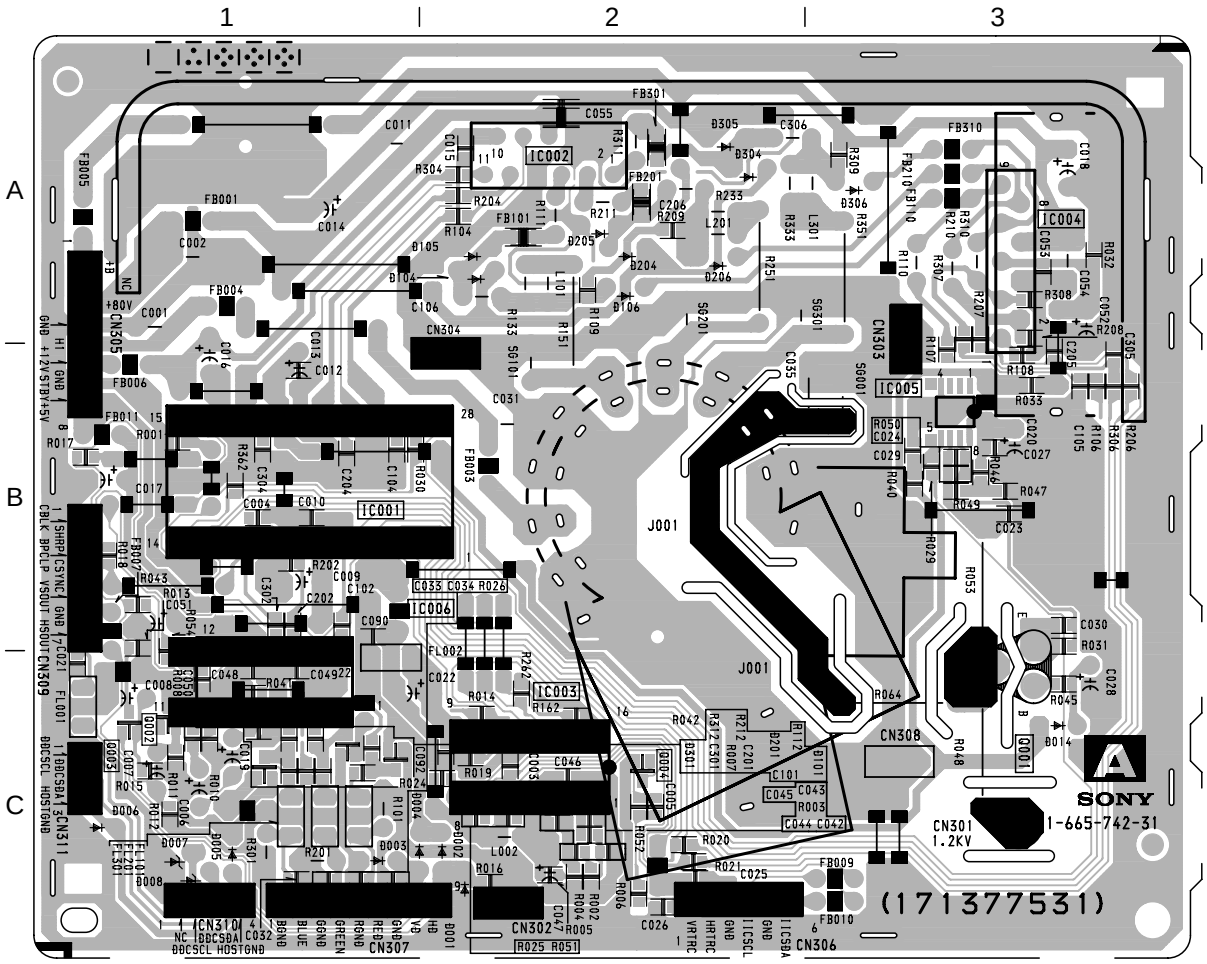
Ref.	Pin No.	Voltage [V]
IC001	1	4.6
	2	4.5
	3	1.8
	4	1.8
	5	2.1
	6	3.4
	8	3.4
	9	2.9
	10	3.4
	11	0.1
	12	0
	13	0.1
	14	0.1
	15	0.2
	16	1.0
	18	2.3
	19	8.7
	22	2.3
	23	8.6
	25	2.2
	26	8.7
	27	1.0
	28	3.8
IC002	1	51.6
	3	51.0
	5	48.0
	8	2.3
	9	2.3
	10	11.8
	11	2.2
IC003	1	0.4
	2	1.5
	3	1.5
	5	4.4
	7	4.6
	8	4.4
	10	0
	11	0.1
IC003	12	0.2
	13	0.1
	14	0.1
	15	0
IC004	1	2.5
	2	2.5
	3	2.5
	5	2.5
	7	87.4
	8	91.5
	9	91.1
IC005	5	3.7
	6	3.7
	7	10.6
IC006	1	3.5
	3	3.5
	5	3.5
	7	3.4
	12	0
	13	0.1
	14	0.2
	17	1.8
	19	1.7
	21	1.7
Q001	B	11.4
	C	526.0
	E	10.9
Q004	B	-1.8
	C	4.4
J001	KR	65.0
	KG	65.0
	KB	65.0
	G2	525.0
	H1	6.2

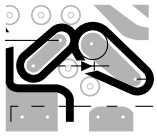


• A BOARD IC003 CXD8688P

• A BOARD WAVEFORMS

— A BOARD —





NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

• A BOARD SEMICONDUCTOR LOCATION

IC		
IC001	B–1	
IC002	A–2	
IC003	C–2	
IC004	A–3	
IC005	B–3	
IC006	C–1	

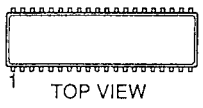
TRANSISTOR		
		*
Q001	C–3	–
Q004	C–2	①

DIODE		
		*
D001	C–2	–
D003	C–1	–
D014	C–3	–
D101	C–1	⑥
D104	A–2	–
D105	A–2	–
D106	A–2	–
D201	C–1	⑥
D204	A–2	–
D205	A–2	–
D206	A–2	⑥
D301	C–1	⑥
D304	A–2	–
D305	A–2	–
D306	A–3	–

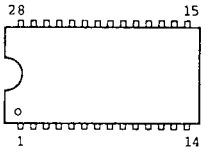
∗: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 5-4)

5-4. SEMICONDUCTORS

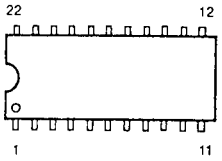
CAT24C08P
ST24C08FB6



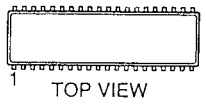
CXA2055P



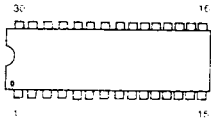
CXA2093S



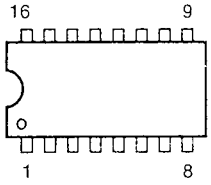
CXA8070P



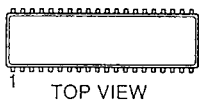
CXA8071P



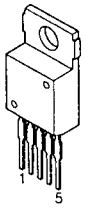
CXD8688P
MC44604
TDA7053A



CXD8692S-CXH



LA6500FA



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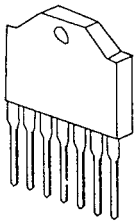
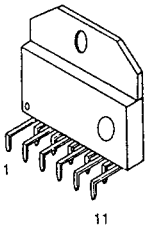
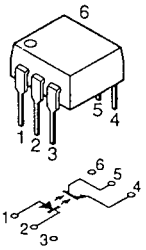


LM2405T



MOC8106TV



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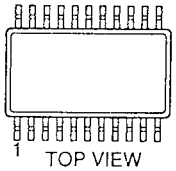
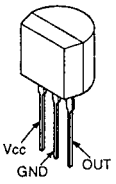
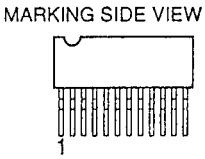
uPC4558G2



PST600C-T



TDA6103Q/N3



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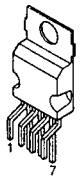
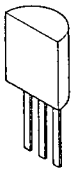


TL431CLP



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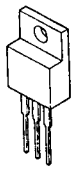

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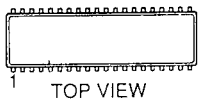

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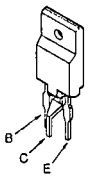

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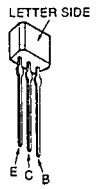
2SC2785-HFE
2SC3311A-QRSTA



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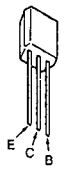

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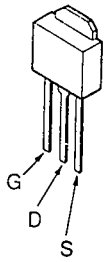
IRFU110A



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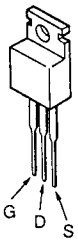

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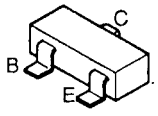
2SC2412K-T-146-QR



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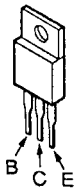
2SB1375
2SC5022-02
2SJ449
2SJ449 (I)



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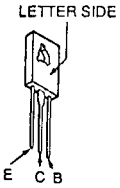

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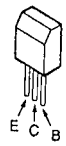

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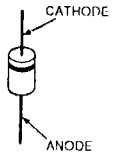
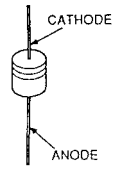
EGP20DPKG23
MUR160



EGP10GPKG23
MTZJ-T-77-5.6B
MTZJ-T-77-8.2B
RB441Q
RD10ES-B2
RD12ES-B2
RD18ES-B2
RD27ES-B2
RD3.6ES-B2
RD4.7ES-B2
RD5.1ES-B2
RD5.6ES-B2
RD6.2ES-B2
RD8.2ES-B2
1SS119-25
1SS119-25TD



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RGP02-17PKG23
UG4DL-6506
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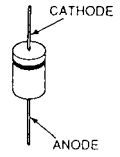

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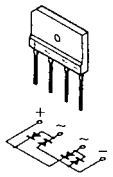

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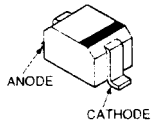
UDZ-TE-17-5.6B



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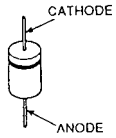

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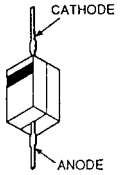

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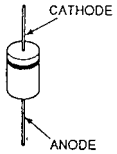
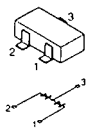
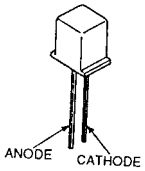


1SS226



SPB-26MVWF



SECTION 6

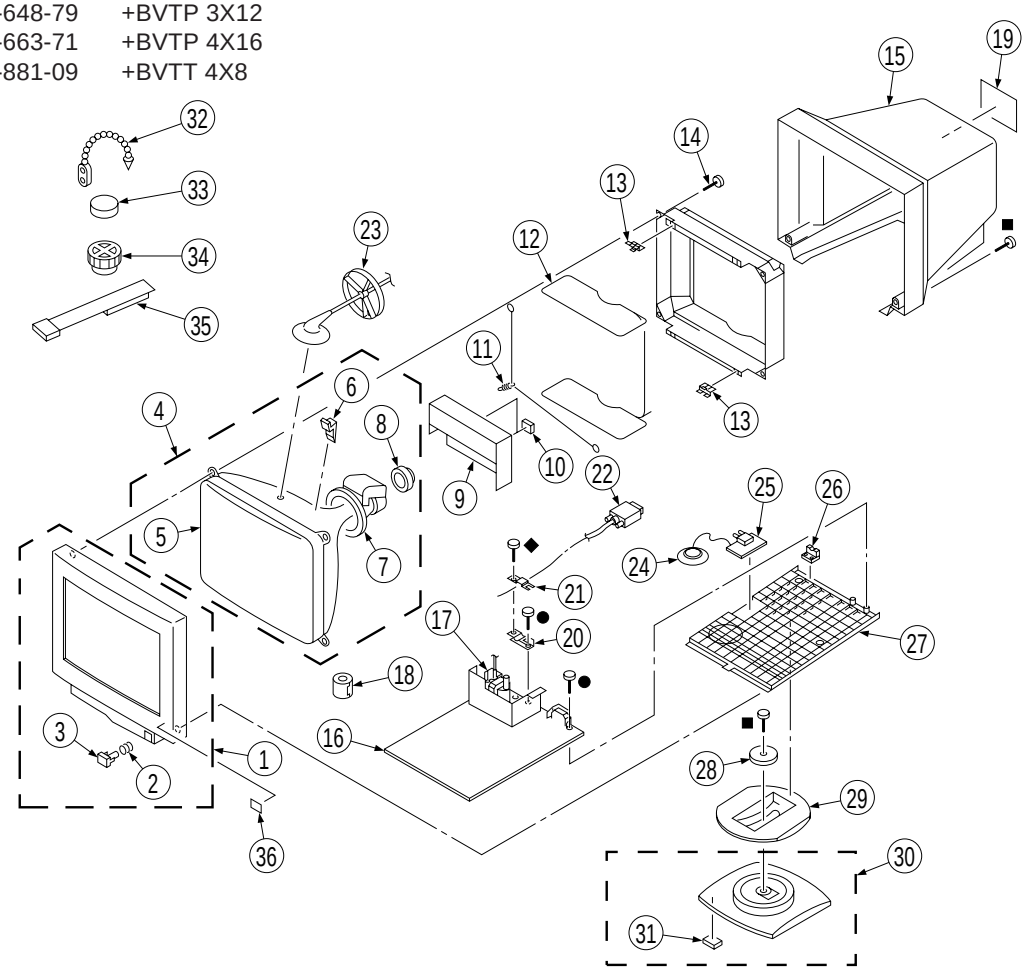
EXPLODED VIEWS

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CHASSIS

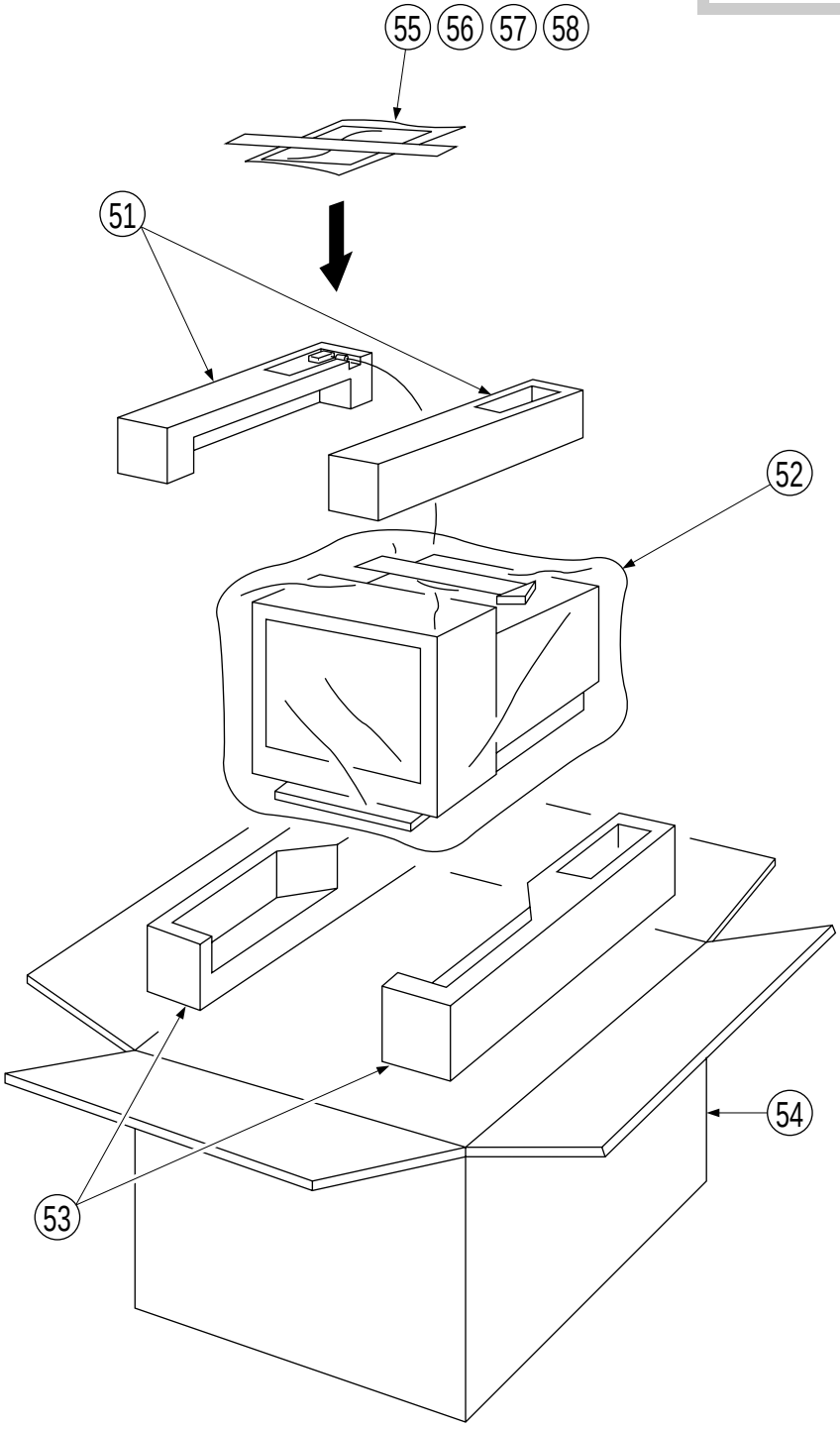
● 7-685-648-79 +BVTP 3X12
■ 7-685-663-71 +BVTP 4X16
◆ 7-685-881-09 +BVTT 4X8



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4035-266-1	BEZEL ASSY	2, 3
2	3-653-339-01	SPRING, COMPRESSION	
3	4-061-991-01	BUTTON, POWER	
4	⚠8-738-728-81	ITC ASSY (17FRFM-RS2) [AUS model]	5-8
4	⚠8-738-735-81	ITC ASSY (17FRSM-R1) [CH model]	
5	⚠8-738-728-05	PICTURE TUBE (17FRFM) [AUS model]	
5	⚠8-738-735-05	PICTURE TUBE (17FRSM) [CH model]	
6	4-040-897-01	SPACER, DY	
7	⚠8-451-490-11	DEFLECTION YOKE (Y17FRJ3-M)	
8	⚠1-452-912-11	NECK ASSY, PICTURE TUBE (NA-2914)	
9	*8-933-301-00	A BOARD, COMPLETE	
10	*4-050-329-01	CUSHION (A)	
11	*4-047-316-01	SPRING, TENSION	
12	⚠1-416-282-11	COIL, DEMAGNETIC	
13	*4-056-260-01	SPACER, DEGAUSSER COIL	
14	4-365-808-01	SCREW (5), TAPPING	
15	4-061-989-01	CABINET	
16	*8-933-309-00	D BOARD, COMPLETE	
17	⚠X-4035-481-1	TRANSFORMER ASSY, FLYBACK (NX-4400//J1L4)	
18	1-543-793-11	FILTER, CLAMP (FERRITE CORE)	
19	*4-062-773-01	LABEL, INFORMATION [AUS model]	
19	*4-064-769-01	LABEL, INFORMATION [CH model]	
20	*4-045-130-01	BRACKET, CABLE	
21	*4-045-131-01	STOPPER, CABLE	
22	*1-782-837-11	CABLE ASSY (15P D SUB CONNECTOR)	
23	3-704-372-01	HOLDER, HV CABLE	
24	1-505-755-11	SPEAKER (4.5CM)	
25	*8-933-303-00	J BOARD, COMPLETE	
26	4-061-988-01	COVER, CABLE	
27	4-061-987-01	CHASSIS, BRACKET	
28	4-060-340-01	STOPPER (A)	
29	4-061-994-01	SLIDER	
30	X-4035-088-1	BASE ASSY, STAND	31
31	*4-061-996-01	CUSHION	
32	4-308-870-00	CLIP, LEAD WIRE	
33	1-452-032-00	MAGNET, DI SC; 10mmϕ	
34	1-452-094-00	MAGNET, ROTATABLE DISK;15mmϕ	
35	4-059-493-01	PERMALLOY (90), CONV. CORRECT	
36	*4-045-471-01	LABEL, ENERGY STAR	

6-2. PACKING MATERIALS

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.



REF.NO.	PART NO.	DESCRIPTION	REMARK
51	* 4-061-802-01	CUSHION (UPPER)(ASSY)	
52	* 4-041-927-31	BAG, POLYETHYLENE	
53	* 4-061-803-01	CUSHION (LOWER)(ASSY)	
54	* 4-062-113-01	INDIVIDUAL CARTON [AUS model]	
54	* 4-061-801-01	INDIVIDUAL CARTON [CH model]	

REF.NO.	PART NO.	DESCRIPTION	REMARK
55	⚠ 1-558-481-12	CORD, POWER (10A/125V)	
56	3-861-541-11	MANUAL, INSTRUCTION	
57	1-778-967-21	ADAPTOR, CONVERSION (for MAC)	
58	4-056-722-08	MONITOR INFORMATION DISK	(WINDOWS 95, 3.5")

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

The components identified by ⊠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS
  MF : µF
- COILS
  UH : µH

REF.NO.	PART NO.	DESCRIPTION			REMARK
*	8-933-301-00	A BOARD, COMPLETE			
		**********			
	4-382-854-11	SCREW (M3X10), P, SW (+) (IC002, IC004)			
		<CAPACITOR>			
C001	1-162-318-11	CERAMIC	0.001MF	10% 500V	
C002	1-104-999-11	MYLAR	0.1MF	10% 200V	
C004	1-164-232-11	CERAMIC CHIP	0.01MF	10% 50V	
C005	1-163-009-11	CERAMIC CHIP	0.001MF	10% 50V	
C009	1-104-664-11	ELECT	47MF	20% 25V	
C011	1-106-220-00	MYLAR	0.1MF	10% 100V	
C013	1-107-909-11	ELECT	47MF	20% 16V	
C014	1-107-932-11	ELECT	47MF	20% 100V	
C015	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C016	1-128-528-11	ELECT	470MF	20% 16V	
C018	1-107-652-11	ELECT	10MF	20% 200V	
C019	1-137-399-11	FILM	0.1MF	5% 50V	
C022	1-104-664-11	ELECT	47MF	20% 25V	
C027	1-164-232-11	CERAMIC CHIP	0.01MF	10% 50V	
C028	1-104-664-11	ELECT	47MF	20% 25V	
C029	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C031	1-517-499-21	GAP, SPARK			
C035	1-162-134-11	CERAMIC	470PF	10% 2KV	
C042	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C044	1-164-344-11	CERAMIC CHIP	0.068MF	10% 25V	
C046	1-164-232-11	CERAMIC CHIP	0.01MF	10% 50V	
C047	1-104-664-11	ELECT	47MF	20% 25V	
C048	1-164-232-11	CERAMIC CHIP	0.01MF	10% 50V	
C049	1-164-232-11	CERAMIC CHIP	0.01MF	10% 50V	
C050	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C051	1-104-664-11	ELECT	47MF	20% 25V	
C053	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C054	1-137-528-11	FILM	0.1MF	10% 250V	
C055	1-104-503-12	CERAMIC CHIP	0.1MF	10% 100V	
C090	1-164-232-11	CERAMIC CHIP	0.01MF	10% 50V	
C092	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C101	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C102	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C104	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C105	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C106	1-137-528-11	FILM	0.1MF	10% 250V	
C111	1-102-937-00	CERAMIC	4PF	0.25PF 50V	
C201	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C202	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C204	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C205	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C206	1-137-528-11	FILM	0.1MF	10% 250V	
C301	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C302	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C304	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C305	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	
C306	1-137-528-11	FILM	0.1MF	10% 250V	
C311	1-102-937-00	CERAMIC	4PF	0.25PF 50V	
		<CONNECTOR>			
CN301	1-506-108-41	PIN, CONNECTOR (TERMINAL PIN)			
CN302	1-695-915-11	TAB (CONTACT)			
CN303	1-695-915-11	TAB (CONTACT)			
CN305*	1-564-511-11	PLUG, CONNECTOR 8P			
CN306*	1-564-509-11	PLUG, CONNECTOR 6P			
CN307*	1-564-512-11	PLUG, CONNECTOR 9P			
CN309*	1-564-510-11	PLUG, CONNECTOR 7P			
CN310*	1-564-507-11	PLUG, CONNECTOR 4P			
CN311*	1-564-506-11	PLUG, CONNECTOR 3P			
		<DIODE>			
D001	8-719-109-89	ZENER DIODE RD5.6ESB2			
D003	8-719-109-89	ZENER DIODE RD5.6ESB2			
D014	8-719-911-19	DIODE 1SS119-25			
D101	8-719-800-76	DIODE 1SS226			
D104	8-719-970-83	DIODE HSS82			
D105	8-719-970-83	DIODE HSS82			
D106	8-719-970-83	DIODE HSS82			
D201	8-719-800-76	DIODE 1SS226			
D204	8-719-970-83	DIODE HSS82			
D205	8-719-970-83	DIODE HSS82			
D206	8-719-970-83	DIODE HSS82			
D301	8-719-800-76	DIODE 1SS226			
D304	8-719-970-83	DIODE HSS82			
D305	8-719-970-83	DIODE HSS82			
D306	8-719-970-83	DIODE HSS82			

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
		<FERRITE BEAD>			
FB001	1-412-911-11	FERRITE	0UH		
FB003	1-412-529-11	INDUCTOR	22UH		
FB004	1-412-911-11	FERRITE	0UH		
FB005	1-412-911-11	FERRITE	0UH		
FB006	1-412-911-11	FERRITE	0UH		
FB009	1-412-911-11	FERRITE	0UH		
FB010	1-412-911-11	FERRITE	0UH		
FB011	1-412-911-11	FERRITE	0UH		
FB012	1-412-911-11	FERRITE	0UH		
FB101	1-500-104-21	FERRITE	0UH		
FB110	1-412-911-11	FERRITE	0UH		
FB201	1-500-104-21	FERRITE	0UH		
FB210	1-412-911-11	FERRITE	0UH		
FB301	1-500-104-21	FERRITE	0UH		
FB310	1-412-911-11	FERRITE	0UH		
		<FILTER>			
FL001	1-412-911-11	FERRITE	0UH		
FL002	1-412-911-11	FERRITE	0UH		
FL101	1-412-911-11	FERRITE	0UH		
FL201	1-412-911-11	FERRITE	0UH		
FL301	1-412-911-11	FERRITE	0UH		
		<IC>			
IC001	8-752-076-89	IC CXA2055P			
IC002	8-759-435-33	IC LM2405T			
IC003	8-759-478-65	IC CXD8688P			
IC004	8-759-434-40	IC TDA6103Q/N3,112			
IC005	8-759-100-96	IC UPC4558G2			
IC006	8-752-082-65	IC CXA2093S			
		<JACK>			
J001	⚠ 1-251-598-11	SOCKET, PICTURE TUBE			
		<COIL>			
L002	1-410-682-31	INDUCTOR	470UH		
L101	1-410-750-41	INDUCTOR	0.47UH		
L201	1-410-750-41	INDUCTOR	0.47UH		
L301	1-410-750-41	INDUCTOR	0.47UH		
		<TRANSISTOR>			
Q001	8-729-032-61	TRANSISTOR 2SC5022-02			
Q004	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
		<RESISTOR>			
R002	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R003	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R004	1-216-055-00	RES,CHIP	1.8K	5%	1/10W
R005	1-216-113-00	RES,CHIP	470K	5%	1/10W
R006	1-216-025-91	RES,CHIP	100	5%	1/10W
R007	1-216-025-91	RES,CHIP	100	5%	1/10W
R014	1-216-025-91	RES,CHIP	100	5%	1/10W
R016	1-216-073-00	RES,CHIP	10K	5%	1/10W
R017	1-216-025-91	RES,CHIP	100	5%	1/10W
R018	1-216-025-91	RES,CHIP	100	5%	1/10W
R020	1-216-025-91	RES,CHIP	100	5%	1/10W
R021	1-216-025-91	RES,CHIP	100	5%	1/10W
R024	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R025	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R026	1-216-073-00	RES,CHIP	10K	5%	1/10W
R029	1-216-099-00	RES,CHIP	120K	5%	1/10W
R031	1-216-049-91	RES,CHIP	1K	5%	1/10W
R032	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R033	1-216-077-00	RES,CHIP	15K	5%	1/10W
R043	1-216-295-91	SHORT	0		
R045	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R046	1-216-097-91	RES,CHIP	100K	5%	1/10W
R047	1-216-073-00	RES,CHIP	10K	5%	1/10W
R048	1-211-885-21	METAL	2.2M	5%	1W
R049	1-216-097-91	RES,CHIP	100K	5%	1/10W
R051	1-216-049-91	RES,CHIP	1K	5%	1/10W
R052	1-216-073-00	RES,CHIP	10K	5%	1/10W
R053	1-219-621-91	METAL	22M	10%	1/4W
R054	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R064	1-202-830-00	SOLID	10K	20%	1/2W
R101	1-215-394-00	METAL	75	1%	1/4W
R104	1-216-021-00	RES,CHIP	68	5%	1/10W
R106	1-216-073-00	RES,CHIP	10K	5%	1/10W
R107	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R108	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R109	1-216-121-91	RES,CHIP	1M	5%	1/10W
R110	1-215-477-00	METAL	220K	1%	1/4W
R111	1-249-405-11	CARBON	100	5%	1/4W F
R112	1-216-027-00	RES,CHIP	120	5%	1/10W
R133	1-247-807-31	CARBON	100	5%	1/4W
R151	1-202-549-00	SOLID	100	20%	1/2W
R201	1-215-394-00	METAL	75	1%	1/4W
R204	1-216-021-00	RES,CHIP	68	5%	1/10W
R206	1-216-073-00	RES,CHIP	10K	5%	1/10W
R207	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R208	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R209	1-216-121-91	RES,CHIP	1M	5%	1/10W
R210	1-215-477-00	METAL	220K	1%	1/4W
R211	1-249-405-11	CARBON	100	5%	1/4W F
R212	1-216-033-00	RES,CHIP	220	5%	1/10W
R233	1-247-807-31	CARBON	100	5%	1/4W
R251	1-202-549-00	SOLID	100	20%	1/2W
R301	1-215-394-00	METAL	75	1%	1/4W
R304	1-216-021-00	RES,CHIP	68	5%	1/10W
R306	1-216-073-00	RES,CHIP	10K	5%	1/10W
R307	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R308	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R309	1-216-121-91	RES,CHIP	1M	5%	1/10W
R310	1-215-477-00	METAL	220K	1%	1/4W
R311	1-249-405-11	CARBON	100	5%	1/4W F
R312	1-216-029-00	RES,CHIP	150	5%	1/10W

REF.NO.	PART NO.	DESCRIPTION			REMARK
R333	1-247-807-31	CARBON	100	5%	1/4W
R351	1-202-549-00	SOLID	100	20%	1/2W
		<SPARK GAP>			
SG001	1-519-422-11	GAP, SPARK			
SG101	1-517-499-21	GAP, SPARK			
SG201	1-517-499-21	GAP, SPARK			
SG301	1-517-499-21	GAP, SPARK			
**********					
*	8-933-309-00	D BOARD, COMPLETE			
		**********			
	2-371-561-00	BUSHING (P), INSULATING (IC503)			
	3-710-578-01	COVER, VOLUME, 6 MOLD			
	4-051-602-11	SHEET, RADIATION (IC503)			
	4-061-982-01	HOLDER, LED (D912)			
	4-382-854-11	SCREW (M3X10), P, SW (+) (IC401, IC503, IC605, Q503, Q510, Q507, Q602, D506, D614, D621)			
	4-382-854-21	SCREW (M3X14), P, SW (+) (IC702)			
	4-389-025-01	SCREW (M4) (EXT TOOTH WASHER)			
	7-685-647-79	SCREW +BVTP 3X10 TYPE2			
	7-685-659-71	SCREW +BVTP 4X8 TYPE2 IT-3			
		<CAPACITOR>			
C401	1-128-528-11	ELECT	470MF	20%	25V
C402	1-106-228-00	MYLAR	0.22MF	10%	100V
C403	1-107-911-11	ELECT	220MF	20%	50V
C404	1-128-528-11	ELECT	470MF	20%	25V
C405	1-137-374-11	FILM	0.047MF	5%	50V
C406	1-137-368-11	FILM	0.0047MF	5%	50V
C407	1-137-372-11	FILM	0.022MF	5%	50V
C408	1-107-713-11	ELECT	4.7MF	20%	35V
C409	1-107-698-11	ELECT	10MF	20%	25V
C501	1-126-964-11	ELECT	10MF	20%	50V
C502	1-137-370-11	FILM	0.01MF	5%	50V
C503	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C504	1-164-645-11	CERAMIC	1000PF	10%	500V
C505	1-109-879-11	CERAMIC	22PF	5%	2KV
C506	1-107-902-11	ELECT	1MF	20%	50V
C507	1-117-964-11	FILM	0.3MF	5%	400V
C508	1-104-665-11	ELECT	100MF	20%	25V
C509	1-162-117-00	CERAMIC	100PF	10%	500V
C510	1-102-228-00	CERAMIC	470PF	10%	500V
C511	1-119-862-11	FILM	0.3MF	5%	200V
C512	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C513	1-107-906-11	ELECT	10MF	20%	50V
C514	1-119-861-71	FILM	0.91MF	5%	200V
C515	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C516	1-117-206-21	FILM	0.36MF	5%	250V
C517	1-137-370-11	FILM	0.01MF	5%	50V
C518	1-117-954-11	FILM	4300PF	3%	1.8KV
C519	1-136-538-11	FILM	0.001MF	3%	2KV
C520	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C521	1-107-444-11	CERAMIC	100PF	5%	2KV
C522	1-136-481-11	MYLAR	0.0022MF	10%	100V
C523	1-115-511-11	FILM	0.12MF	5%	250V
C524	1-107-965-11	ELECT	100MF	20%	250V
C525	1-119-860-11	FILM	0.082MF	5%	200V
C526	1-164-646-11	CERAMIC	2200PF	10%	500V
C527	1-117-879-91	CAPACITOR	0.01MF	10%	250V
C528	1-115-349-51	CERAMIC	0.01MF		2KV
C529	1-136-060-00	FILM	0.047MF	5%	400V
C530	1-115-511-11	FILM	0.12MF	5%	250V
C531	1-115-509-11	FILM	0.068MF	5%	250V
C532	1-137-426-11	FILM	0.47MF	10%	100V
C533	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C535	1-137-370-11	FILM	0.01MF	5%	50V
C536	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C538	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C539	1-137-418-11	FILM	0.022MF	10%	100V
C540	1-136-203-11	FILM	10000PF	5%	630V
C541	1-126-963-11	ELECT	4.7MF	20%	50V
C542	1-126-960-11	ELECT	1MF	20%	50V
C543	1-102-973-00	CERAMIC	100PF	5%	50V
C544	1-137-370-11	FILM	0.01MF	5%	50V
C545	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C546	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C547	1-107-902-11	ELECT	1MF	20%	50V
C548	1-137-364-11	FILM	0.001MF	5%	50V
C549	1-137-375-11	FILM	0.068MF	5%	50V
C550	1-126-933-11	ELECT	100MF	20%	16V
C551	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C552	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C553	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C554	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C555	1-137-399-11	FILM	0.1MF	5%	50V
C556	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C557	1-126-965-11	ELECT	22MF	20%	50V
C558	1-126-960-11	ELECT	1MF	20%	50V
C559	1-137-368-11	FILM	0.0047MF	5%	50V
C560	1-117-206-21	FILM	0.36MF	5%	250V
C561	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C562	1-126-933-11	ELECT	100MF	20%	16V
C563	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C564	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C565	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C566	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C567	1-126-933-11	ELECT	100MF	20%	16V
C568	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C569	1-137-399-11	FILM	0.1MF	5%	50V
C570	1-104-665-11	ELECT	100MF	20%	25V
C571	1-126-964-11	ELECT	10MF	20%	50V
C572	1-107-651-11	ELECT	4.7MF	20%	250V
C573	1-107-960-11	ELECT	4.7MF	20%	250V
C574	1-117-879-91	CAPACITOR	0.01MF	10%	250V
C575	1-107-965-11	ELECT	100MF	20%	250V
C576	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C577	1-115-349-51	CERAMIC	0.01MF		2KV

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
C578	1-117-214-11	CERAMIC	0.001MF	10%	2KV
C579	1-109-879-11	CERAMIC	22PF	5%	2KV
C580	1-137-370-11	FILM	0.01MF	5%	50V
C582	1-126-964-11	ELECT	10MF	20%	50V
C583	1-137-399-11	FILM	0.1MF	5%	50V
C584	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C604 ⚠	1-104-708-51	FILM	0.47MF	20%	250V
C605 ⚠	1-107-533-51	FILM	1MF	20%	250V
C606 ⚠	1-117-703-51	CERAMIC	0.0047MF	99%	250V
C607	1-130-467-00	FILM	470PF	5%	50V
C610	1-109-984-11	ELECT(BLOCK)	390MF	20%	400V
C611	1-162-129-00	CERAMIC	150PF	10%	2KV
C612 ⚠	1-117-703-51	CERAMIC	0.0047MF	99%	250V
C613	1-136-203-11	FILM	10000PF	5%	630V
C614	1-136-177-00	FILM	1MF	5%	50V
C615	1-137-364-11	FILM	0.001MF	5%	50V
C616	1-130-467-00	FILM	470PF	5%	50V
C617	1-137-366-11	FILM	0.0022MF	5%	50V
C618	1-102-106-00	CERAMIC	100PF	10%	50V
C619	1-107-966-51	ELECT	220MF	20%	250V
C620	1-107-933-11	ELECT	100MF	20%	100V
C621	1-107-914-11	ELECT	1000MF	20%	25V
C622	1-128-528-11	ELECT	470MF	20%	25V
C623	1-126-942-61	ELECT	1000MF	20%	25V
C624	1-126-767-11	ELECT	1000MF	20%	16V
C625	1-137-372-11	FILM	0.022MF	5%	50V
C626	1-128-528-11	ELECT	470MF	20%	16V
C627	1-128-528-11	ELECT	470MF	20%	16V
C628	1-104-665-11	ELECT	100MF	20%	25V
C629	1-113-900-11	CERAMIC	470PF	10%	250V
C630	1-137-399-11	FILM	0.1MF	5%	50V
C632	1-128-528-11	ELECT	470MF	20%	16V
C633	1-126-767-11	ELECT	1000MF	20%	16V
C634	1-126-940-11	ELECT	330MF	20%	25V
C635	1-137-370-11	FILM	0.01MF	5%	50V
C636	1-137-378-11	FILM	0.22MF	5%	50V
C637	1-137-399-11	FILM	0.1MF	5%	50V
C640	1-113-912-11	CERAMIC	0.0047MF	20%	250V
C642 ⚠	1-117-703-51	CERAMIC	0.0047MF	99%	250V
C643 ⚠	1-117-703-51	CERAMIC	0.0047MF	99%	250V
C644	1-104-664-11	ELECT	47MF	20%	25V
C654	1-162-558-11	CERAMIC	100PF	10%	2KV
C701	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C702	1-126-964-11	ELECT	10MF	20%	50V
C703	1-136-169-00	FILM	0.22MF	5%	50V
C704	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C705	1-137-399-11	FILM	0.1MF	5%	50V
C706	1-102-973-00	CERAMIC	100PF	5%	50V
C707	1-102-973-00	CERAMIC	100PF	5%	50V
C708	1-137-399-11	FILM	0.1MF	5%	50V
C709	1-126-941-11	ELECT	470MF	20%	25V
C710	1-126-941-11	ELECT	470MF	20%	25V
C711	1-137-399-11	FILM	0.1MF	5%	50V
C712	1-137-399-11	FILM	0.1MF	5%	50V
C713	1-126-927-11	ELECT	2200MF	20%	10V
C714	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C715	1-126-935-11	ELECT	470MF	20%	16V
C801	1-126-933-11	ELECT	100MF	20%	16V
C802	1-136-173-00	FILM	0.47MF	5%	50V
C803	1-136-173-00	FILM	0.47MF	5%	50V
C804	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C901	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C902	1-126-935-11	ELECT	470MF	20%	16V
C903	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C904	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C905	1-136-500-11	FILM	0.068MF	5%	50V
C906	1-136-177-00	FILM	1MF	5%	50V
C907	1-126-964-11	ELECT	10MF	20%	50V
C908	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C909	1-126-927-11	ELECT	2200MF	20%	10V
C910	1-137-399-11	FILM	0.1MF	5%	50V
C911	1-137-370-11	FILM	0.01MF	5%	50V
C912	1-126-933-11	ELECT	100MF	20%	16V
C913	1-137-399-11	FILM	0.1MF	5%	50V
C914	1-102-514-11	CERAMIC	22PF	5%	50V
C915	1-102-514-11	CERAMIC	22PF	5%	50V
C916	1-126-965-11	ELECT	22MF	20%	50V
C917	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C918	1-126-964-11	ELECT	10MF	20%	50V
C920	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C921	1-126-935-11	ELECT	470MF	20%	16V
C922	1-126-960-11	ELECT	1MF	20%	50V
C923	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C924	1-126-965-11	ELECT	22MF	20%	50V
C925	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C926	1-126-767-11	ELECT	1000MF	20%	16V
C927	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C928	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C929	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C930	1-137-370-11	FILM	0.01MF	5%	50V
C931	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C932	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C933	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V
C934	1-126-933-11	ELECT	100MF	20%	16V
C935	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C936	1-137-370-11	FILM	0.01MF	5%	50V
C937	1-102-852-91	CERAMIC	47PF	5%	50V
C938	1-102-973-00	CERAMIC	100PF	5%	50V

<CONNECTOR>

CN501*	1-580-798-11	CONNECTOR PIN (DY) 6P	
CN502*	1-564-512-11	PLUG, CONNECTOR 9P	
CN510*	1-900-802-12	CONNECTOR, 1P MINI	
CN512	1-695-915-11	TAB (CONTACT)	
CN600 ⚠	1-251-457-21	INLET, AC	
CN601	1-691-960-11	PIN, CONNECTOR (PC BOARD) 3P	
CN602*	1-506-371-00	PIN, CONNECTOR 2P	
CN701*	1-564-511-11	PLUG, CONNECTOR 8P	
CN802*	1-564-509-11	PLUG, CONNECTOR 6P	
CN901*	1-508-879-11	BASE POST	

D

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN902	1-564-513-11	PLUG, CONNECTOR 10P	
CN903*	1-564-510-11	PLUG, CONNECTOR 7P	
		<DIODE>	
D401	8-719-979-58	DIODE EGP10D	
D402	8-719-109-81	ZENER DIODE RD4.7ESB2	
D403	8-719-911-19	DIODE 1SS119-25	
D404	8-719-911-19	DIODE 1SS119-25	
D501	8-719-110-31	ZENER DIODE RD12ESB2	
D502	8-719-975-77	DIODE SB340	
D503	1-215-437-00	METAL 4.7K 1% 1/4W	
D504	8-719-110-49	ZENER DIODE RD18ESB2	
D505	8-719-941-74	DIODE ERB91-02	
D506	8-719-061-21	DIODE FMQ-G5FMS	
D507	8-719-109-85	ZENER DIODE RD5.1ESB2	
D508	1-215-429-00	METAL 2.2K 1% 1/4W	
D509	8-719-110-17	ZENER DIODE RD10ESB2	
D510	8-719-028-72	DIODE RGP02-17EL-6433	
D511	8-719-109-93	ZENER DIODE RD6.2ESB2	
D512	8-719-911-19	DIODE 1SS119-25	
D513	8-719-066-40	DIODE MUR160	
D514	8-719-970-83	DIODE HSS82	
D515	8-719-979-58	DIODE EGP10D	
D516	8-719-051-97	DIODE 3DL41A(LC6-15)	
D517	8-719-110-67	ZENER DIODE RD27ESB2	
D518	8-719-110-17	ZENER DIODE RD10ESB2	
D519	8-719-911-19	DIODE 1SS119-25	
D520	8-719-028-72	DIODE RGP02-17EL-6433	
D521	8-719-028-72	DIODE RGP02-17EL-6433	
D522	8-719-911-19	DIODE 1SS119-25	
D523	8-719-911-19	DIODE 1SS119-25	
D524	8-719-970-83	DIODE HSS82	
D525	8-719-970-83	DIODE HSS82	
D526	8-719-911-19	DIODE 1SS119-25	
D527	8-719-109-85	ZENER DIODE RD5.1ESB2	
D529	8-719-404-49	DIODE MA111	
D530	8-719-404-49	DIODE MA111	
D531	8-719-404-49	DIODE MA111	
D601 ⚠	8-719-025-88	DIODE GBU4JL-6088	
D602	8-719-911-19	DIODE 1SS119-25	
D603	8-719-986-73	DIODE RB441Q	
D605	8-719-970-83	DIODE HSS82	
D606	8-719-986-73	DIODE RB441Q	
D607	8-719-053-19	DIODE UF4007G23	
D609	8-719-986-73	DIODE RB441Q	
D610	8-719-979-84	DIODE EGP20DPKG23	
D611	8-719-970-83	DIODE HSS82	
D613	8-719-979-58	DIODE EGP10D	
D614	8-719-058-38	DIODE FMN-G12S	
D615	8-719-048-63	DIODE UG4DL-6506	
D616	8-719-048-63	DIODE UG4DL-6506	
D617	8-719-979-84	DIODE EGP20DPKG23	
D618	8-719-979-84	DIODE EGP20DPKG23	
D621	8-719-067-68	DIODE FMC-26UA	
D622	8-719-110-08	ZENER DIODE RD8.2ESB2	
D623	8-719-911-19	DIODE 1SS119-25	
D654	8-719-109-69	ZENER DIODE RD3.6ESB2	
D704	8-719-911-19	DIODE 1SS119-25	
D801	8-719-404-49	DIODE MA111	
D802	8-719-404-49	DIODE MA111	
D803	8-719-404-49	DIODE MA111	
D804	8-719-404-49	DIODE MA111	
D805	8-719-404-49	DIODE MA111	
D901	8-719-911-19	DIODE 1SS119-25	
D902	8-719-923-38	ZENER DIODE MTZJ-T-77-5.6B	
D905	8-719-911-19	DIODE 1SS119-25	
D906	8-719-911-19	DIODE 1SS119-25	
D907	8-719-911-19	DIODE 1SS119-25	
D908	8-719-911-19	DIODE 1SS119-25	
D909	8-719-109-89	ZENER DIODE RD5.6ESB2	
D910	8-719-109-89	ZENER DIODE RD5.6ESB2	
D912	8-719-045-19	DIODE SPB-26MVWF	
D914	8-719-911-19	DIODE 1SS119-25	
D916	8-719-911-19	DIODE 1SS119-25	
D917	8-719-158-15	ZENER DIODE RD5.6SB	
D918	8-719-109-89	ZENER DIODE RD5.6ESB2	
D919	8-719-109-89	ZENER DIODE RD5.6ESB2	
D920	8-719-986-73	DIODE RB441Q	
D922	8-719-404-49	DIODE MA111	
D923	8-719-404-49	DIODE MA111	
D924	8-719-404-49	DIODE MA111	
D925	8-719-404-49	DIODE MA111	
D928	8-719-158-15	ZENER DIODE RD5.6SB	
D929	8-719-158-15	ZENER DIODE RD5.6SB	
D930	8-719-158-15	ZENER DIODE RD5.6SB	
D931	8-719-158-15	ZENER DIODE RD5.6SB	
D932	8-719-158-15	ZENER DIODE RD5.6SB	
D933	8-719-158-15	ZENER DIODE RD5.6SB	
D934	8-719-158-15	ZENER DIODE RD5.6SB	
		<FUSE>	
F601 ⚠	1-576-231-11	FUSE (H.B.C.) (4A/250V)	
	1-533-223-11	HOLDER, FUSE ; F601	
		<FERRITE BEAD>	
FB502	1-410-396-41	FERRITE 0.45UH	
FB503	1-412-911-11	FERRITE 0UH	
FB504	1-412-911-11	FERRITE 0UH	
FB506	1-412-911-11	FERRITE 0UH	
FB601	1-410-396-41	FERRITE 0.45UH	
FB603	1-410-396-41	FERRITE 0.45UH	
FB604	1-410-396-41	FERRITE 0.45UH	
FB605	1-412-911-11	FERRITE 0UH	
FB607	1-412-911-11	FERRITE 0UH	
FB608 ⚠	1-412-911-21	FERRITE 0UH	
FB609 ⚠	1-412-911-21	FERRITE 0UH	
FB610 ⚠	1-412-911-21	FERRITE 0UH	
FB611 ⚠	1-412-911-21	FERRITE 0UH	
FB612 ⚠	1-412-911-21	FERRITE 0UH	
FB613 ⚠	1-412-911-21	FERRITE 0UH	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
FB614⚠	1-412-911-21	FERRITE	0UH		
FB615⚠	1-412-911-21	FERRITE	0UH		
FB616	1-412-911-11	FERRITE	0UH		
FB618⚠	1-412-911-21	FERRITE	0UH		
FB619⚠	1-412-911-21	FERRITE	0UH		
FB654	1-412-911-11	FERRITE	0UH		
FB655⚠	1-412-911-21	FERRITE	0UH		
FB656⚠	1-412-911-21	FERRITE	0UH		
FB801	1-412-911-11	FERRITE	0UH		
FB802	1-412-911-11	FERRITE	0UH		
FB902	1-247-807-31	CARBON	100	5%	1/4W
FB904	1-543-961-11	FERRITE	0UH		
		<TERMINAL>			
GT001*	1-537-738-21	TERMINAL, EARTH			
GT002*	1-537-738-21	TERMINAL, EARTH			
		<IC>			
IC401	8-759-444-83	IC LA7840L			
IC501⚠	8-759-478-76	IC UPC5021-109			
IC502	8-759-803-42	IC LA6500-FA			
IC503	8-759-803-42	IC LA6500-FA			
IC601⚠	8-759-482-46	IC MC44604			
IC603	8-759-472-87	IC MOC8106TV			
IC604	8-759-908-15	IC TL431CLP			
IC605	8-759-072-98	IC TDA8138A			
IC701	8-759-478-66	IC CXA8070P			
IC702	8-749-014-32	IC STK392-910A			
IC801	8-759-478-64	IC TDA7053A			
IC802	8-759-390-57	IC UPC2405AHF			
IC900	8-759-525-10	IC TC7SET08F(TE85L)			
IC901	8-759-525-67	IC CXD8692S-CXH			
IC902	8-759-478-68	IC CXA8071P			
IC904	8-759-165-80	IC PST600C-T			
IC905	8-759-370-34	IC ST24C08FB6			
		<CHIP CONDUCTOR>			
JR31	1-216-296-91	SHORT	0		
JR32	1-216-295-91	SHORT	0		
JR33	1-500-104-21	FERRITE	0UH		
JR34	1-216-295-91	SHORT	0		
JR35	1-216-296-91	SHORT	0		
JR36	1-216-295-91	SHORT	0		
JR001	1-216-296-91	SHORT	0		
JR002	1-216-296-91	SHORT	0		
JR003	1-216-296-91	SHORT	0		
JR004	1-216-296-91	SHORT	0		
JR005	1-216-296-91	SHORT	0		
JR006	1-216-296-91	SHORT	0		
JR007	1-216-296-91	SHORT	0		
JR008	1-216-296-91	SHORT	0		
JR009	1-216-296-91	SHORT	0		
JR010	1-216-296-91	SHORT	0		
JR011	1-216-296-91	SHORT	0		
JR013	1-216-296-91	SHORT	0		
JR014	1-216-296-91	SHORT	0		
JR015	1-216-296-91	SHORT	0		
JR016	1-216-296-91	SHORT	0		
JR017	1-216-296-91	SHORT	0		
JR018	1-216-296-91	SHORT	0		
JR019	1-216-296-91	SHORT	0		
JR020	1-216-296-91	SHORT	0		
JR021	1-216-296-91	SHORT	0		
JR022	1-216-296-91	SHORT	0		
JR023	1-216-296-91	SHORT	0		
JR024	1-216-296-91	SHORT	0		
JR025	1-216-296-91	SHORT	0		
JR026	1-216-296-91	SHORT	0		
JR027	1-216-296-91	SHORT	0		
JR028	1-216-296-91	SHORT	0		
JR029	1-216-296-91	SHORT	0		
JR030	1-216-295-91	SHORT	0		
JR801	1-216-295-91	SHORT	0		
		<COIL>			
L501	1-406-662-11	COIL, CHOKE	33UH		
L502	1-406-662-11	COIL, CHOKE	33UH		
L503	1-411-594-11	COIL, CHOKE	5MMH		
L505	1-412-552-11	INDUCTOR	2.2MMH		
L506	1-412-545-11	INDUCTOR	470UH		
L507	1-412-537-31	INDUCTOR	100UH		
L508	1-416-393-11	COIL, HORIZONTAL LINEARITY			
L509	1-416-394-11	COIL, HORIZONTAL LINEARITY			
L510	1-416-367-11	COIL, HORIZONTAL CENTER			
L603	1-412-537-31	INDUCTOR	100UH		
L604	1-412-537-31	INDUCTOR	100UH		
L605	1-406-665-11	COIL, CHOKE	100UH		
L606	1-406-665-11	COIL, CHOKE	100UH		
L901	1-412-537-31	INDUCTOR	100UH		
L902	1-412-537-31	INDUCTOR	100UH		
		<FILTER>			
LF602⚠	1-429-180-11	TRANSFORMER, LINE FILTER			
		<TRANSISTOR>			
Q501	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q502	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q503	8-729-035-54	TRANSISTOR 2SJ449			
Q504	8-729-031-89	TRANSISTOR 2SC3941A-Q(TA)			
Q505	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q506	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q507	8-729-041-64	TRANSISTOR BU2527AX-ON5020			
Q508	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q510	8-729-042-45	TRANSISTOR STP5NA80FI			
Q511	8-729-042-34	TRANSISTOR IRFU110A			
Q512	8-729-043-16	TRANSISTOR IRLI520GLF33			

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REF.NO.	PART NO.	DESCRIPTION	REMARK
Q513	8-729-041-95	TRANSISTOR IRLI540GLF33	
Q514	8-729-041-93	TRANSISTOR IRLI530GLF33	
Q515	8-729-043-16	TRANSISTOR IRLI520GLF33	
Q516	8-729-043-16	TRANSISTOR IRLI520GLF33	
Q517	8-729-326-11	TRANSISTOR 2SC2611	
Q518	8-729-140-50	TRANSISTOR 2SC3209LK	
Q519	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q520	8-729-042-23	TRANSISTOR IRFI9620GSLF35	
Q521	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q522	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q523	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q601	8-729-029-92	TRANSISTOR DTC143ESA	
Q602	8-729-041-06	TRANSISTOR 2SK1507-91MR-F119	
Q604	8-729-029-66	TRANSISTOR DTC114ESA	
Q605	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q606	8-729-029-66	TRANSISTOR DTC114ESA	
Q901	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q902	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q903	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		<RESISTOR>	
R401	1-249-383-11	CARBON 1.5 5% 1/4W	F
R402	1-215-866-11	METAL OXIDE 330 5% 1W	F
R403	1-214-796-00	METAL 1.5 1% 1/2W	
R404	1-215-443-00	METAL 8.2K 1% 1/4W	
R405	1-214-796-00	METAL 1.5 1% 1/2W	
R406	1-215-447-00	METAL 12K 1% 1/4W	
R407	1-249-421-11	CARBON 2.2K 5% 1/4W	
R408	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R409	1-216-671-11	METAL CHIP 6.8K 0.50% 1/10W	
R410	1-215-447-00	METAL 12K 1% 1/4W	
R411	1-216-691-11	METAL CHIP 47K 0.50% 1/10W	
R451	1-215-449-00	METAL 15K 1% 1/4W	
R452	1-215-435-00	METAL 3.9K 1% 1/4W	
R453	1-215-445-00	METAL 10K 1% 1/4W	
R454	1-215-445-00	METAL 10K 1% 1/4W	
R455	1-215-479-00	METAL 270K 1% 1/4W	
R500	1-249-377-11	CARBON 0.47 5% 1/4W	F
R501	1-247-807-31	CARBON 100 5% 1/4W	
R502	1-218-758-11	METAL CHIP 180K 0.50% 1/10W	
R503	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R504	1-249-377-11	CARBON 0.47 5% 1/4W	F
R505	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R506	1-215-481-00	METAL 330K 1% 1/4W	
R507	1-215-431-00	METAL 2.7K 1% 1/4W	
R508	1-247-807-31	CARBON 100 5% 1/4W	
R509	1-247-863-91	CARBON 22K 5% 1/4W	
R510	1-216-081-00	RES,CHIP 22K 5% 1/10W	
R511	1-249-381-11	CARBON 1 5% 1/4W	F
R512	1-249-389-11	CARBON 4.7 5% 1/4W	
R513	1-215-888-00	METAL OXIDE 220 5% 2W	F
R514	1-216-081-00	RES,CHIP 22K 5% 1/10W	
R515	1-249-417-11	CARBON 1K 5% 1/4W	F
R516	1-215-863-11	METAL 100 1% 1W	
R517	1-216-393-00	METAL OXIDE 2.2 5% 3W	F
R518	1-216-393-00	METAL OXIDE 2.2 5% 3W	F
R519	1-216-089-91	RES,CHIP 47K 5% 1/10W	
R520	1-249-397-11	CARBON 22 5% 1/4W	F
R521	1-249-417-11	CARBON 1K 5% 1/4W	F
R522	1-249-401-11	CARBON 47 5% 1/4W	
R523	1-216-089-91	RES,CHIP 47K 5% 1/10W	
R524	1-216-089-91	RES,CHIP 47K 5% 1/10W	
R525	1-249-417-11	CARBON 1K 5% 1/4W	F
R526	1-249-425-11	CARBON 4.7K 5% 1/4W	
R527	1-249-429-11	CARBON 10K 5% 1/4W	
R528	1-247-863-91	CARBON 22K 5% 1/4W	
R529	1-249-429-11	CARBON 10K 5% 1/4W	F
R530	1-216-474-11	METAL OXIDE 82 5% 3W	F
R531	1-216-474-11	METAL OXIDE 82 5% 3W	F
R532	1-249-385-11	CARBON 2.2 5% 1/4W	F
R533	1-249-417-11	CARBON 1K 5% 1/4W	F
R534	1-249-405-11	CARBON 100 5% 1/4W	F
R535	1-216-089-91	RES,CHIP 47K 5% 1/10W	
R536	1-249-417-11	CARBON 1K 5% 1/4W	F
R537	1-216-089-91	RES,CHIP 47K 5% 1/10W	
R538	1-215-905-11	METAL OXIDE 10 5% 3W	F
R539	1-215-905-11	METAL OXIDE 10 5% 3W	F
R540	1-215-476-00	METAL 200K 1% 1/4W	
R541	1-215-421-00	METAL 1K 1% 1/4W	
R542	1-215-421-00	METAL 1K 1% 1/4W	
R543	1-249-389-11	CARBON 4.7 5% 1/4W	F
R544	1-215-493-00	METAL 1M 1% 1/4W	
R545	1-216-691-11	METAL CHIP 47K 0.50% 1/10W	
R546	1-215-457-00	METAL 33K 1% 1/4W	
R547	1-215-487-00	METAL 560K 1% 1/4W	
R548	1-216-657-11	METAL CHIP 1.8K 0.50% 1/10W	
R549	1-215-467-00	METAL 82K 1% 1/4W	
R550	1-215-427-00	METAL 1.8K 1% 1/4W	
R551	1-215-453-00	METAL 22K 1% 1/4W	
R552	1-215-465-00	METAL 68K 1% 1/4W	
R553	1-216-699-11	METAL CHIP 100K 0.50% 1/10W	
R554	1-218-756-11	METAL CHIP 150K 0.50% 1/10W	
R556	1-216-691-11	METAL CHIP 47K 0.50% 1/10W	
R557	1-216-079-00	RES,CHIP 18K 5% 1/10W	
R558	1-215-445-00	METAL 10K 1% 1/4W	
R559	1-215-431-00	METAL 2.7K 1% 1/4W	
R560	1-215-449-00	METAL 15K 1% 1/4W	
R561	1-216-474-11	METAL OXIDE 82 5% 3W	F
R562	1-215-447-00	METAL 12K 1% 1/4W	
R563	1-249-383-11	CARBON 1.5 5% 1/4W	F
R564	1-216-089-91	RES,CHIP 47K 5% 1/10W	
R565	1-215-481-00	METAL 330K 1% 1/4W	
R566	1-215-859-00	METAL OXIDE 22 5% 1W	F
R567	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R568	1-249-437-11	CARBON 47K 5% 1/4W	
R569	1-216-295-91	SHORT 0	
R570	1-249-417-11	CARBON 1K 5% 1/4W	
R571	1-215-926-00	METAL OXIDE 33K 5% 3W	F
R572	1-249-437-11	CARBON 47K 5% 1/4W	
R573	1-247-887-00	CARBON 220K 5% 1/4W	
R574	1-249-429-11	CARBON 10K 5% 1/4W	
R575	1-260-314-11	CARBON 68 5% 1/2W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
R576	1-249-437-11	CARBON	47K	5%	1/4W	
R577	1-216-445-11	METAL OXIDE	12	5%	2W	F
R578	1-216-423-11	METAL OXIDE	27	5%	1W	F
R579	1-247-887-00	CARBON	220K	5%	1/4W	
R580	1-216-681-11	METAL CHIP	18K	0.50%	1/10W	
R581	1-249-429-11	CARBON	10K	5%	1/4W	
R582	1-249-397-11	CARBON	22	5%	1/4W	F
R583	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R584	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
R585	1-260-099-11	CARBON	1K	5%	1/2W	
R586	1-260-103-11	CARBON	2.2K	5%	1/2W	
R587	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R589	1-249-425-11	CARBON	4.7K	5%	1/4W	
R590	1-215-453-00	METAL	22K	1%	1/4W	
R591	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	
R592	1-215-881-11	METAL OXIDE	15	5%	2W	F
R593	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R594	1-215-493-00	METAL	1M	1%	1/4W	
R595	1-215-863-11	METAL	100	1%	1W	
R600 ⚠	1-205-998-11	CEMENTED	1	5%	10W	
R603	1-249-403-11	CARBON	68	5%	1/4W	
R604	1-202-847-00	SOLID	560K	20%	1/2W	
R605	1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R609	1-215-927-00	METAL OXIDE	47K	5%	3W	F
R610	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R611	1-215-445-00	METAL	10K	1%	1/4W	
R612	1-215-373-31	METAL	10	1%	1/4W	
R613	1-249-429-11	CARBON	10K	5%	1/4W	
R614	1-216-381-11	METAL OXIDE	0.22	5%	3W	F
R615	1-247-885-00	CARBON	180K	5%	1/4W	
R616	1-249-377-11	CARBON	0.47	5%	1/4W	F
R617	1-249-417-11	CARBON	1K	5%	1/4W	
R618	1-215-407-00	METAL	270	1%	1/4W	
R619	1-249-421-11	CARBON	2.2K	5%	1/4W	
R620	1-247-863-91	CARBON	22K	5%	1/4W	
R621 ⚠	1-211-874-21	FUSIBLE	0.12	10%	1/2W	
R622 ⚠	1-211-874-21	FUSIBLE	0.12	10%	1/2W	
R623 ⚠	1-211-874-21	FUSIBLE	0.12	10%	1/2W	
R624 ⚠	1-219-154-21	FUSIBLE	0.12	10%	1/4W	
R625 ⚠	1-219-154-21	FUSIBLE	0.12	10%	1/4W	
R626	1-215-405-00	METAL	220	1%	1/4W	
R627	1-249-441-11	CARBON	100K	5%	1/4W	
R628	1-215-479-00	METAL	270K	1%	1/4W	
R629	1-215-450-00	METAL	16K	1%	1/4W	
R630	1-215-437-00	METAL	4.7K	1%	1/4W	
R631	1-215-405-00	METAL	220	1%	1/4W	
R632	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R633	1-249-429-11	CARBON	10K	5%	1/4W	
R634	1-249-431-11	CARBON	15K	5%	1/4W	
R635	1-249-417-11	CARBON	1K	5%	1/4W	
R636	1-249-417-11	CARBON	1K	5%	1/4W	
R637	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R638	1-215-435-00	METAL	3.9K	1%	1/4W	
R639 ⚠	1-211-874-21	FUSIBLE	0.12	10%	1/2W	
R641	1-249-429-11	CARBON	10K	5%	1/4W	F
R642	1-218-642-11	METAL OXIDE	100K	5%	1W	F

REF.NO.	PART NO.	DESCRIPTION				REMARK
R698	1-215-435-00	METAL	3.9K	1%	1/4W	
R703	1-260-092-11	CARBON	270	5%	1/2W	
R704	1-215-445-00	METAL	10K	1%	1/4W	
R705	1-249-425-11	CARBON	4.7K	5%	1/4W	
R706	1-249-425-11	CARBON	4.7K	5%	1/4W	
R707	1-249-429-11	CARBON	10K	5%	1/4W	
R708	1-249-429-11	CARBON	10K	5%	1/4W	
R709	1-249-429-11	CARBON	10K	5%	1/4W	
R710	1-249-429-11	CARBON	10K	5%	1/4W	
R711	1-216-346-00	METAL OXIDE	0.56	5%	1W	F
R712	1-215-860-11	METAL OXIDE	33	5%	1W	F
R713	1-216-347-11	METAL OXIDE	0.68	5%	1W	F
R716	1-215-860-11	METAL OXIDE	33	5%	1W	F
R717	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R718	1-215-863-11	METAL OXIDE	100	5%	1W	F
R719	1-249-431-11	CARBON	15K	5%	1/4W	
R724	1-216-423-11	METAL OXIDE	27	5%	1W	F
R727	1-249-431-11	CARBON	15K	5%	1/4W	
R728	1-215-863-11	METAL OXIDE	100	5%	1W	F
R729	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R730	1-215-860-11	METAL OXIDE	33	5%	1W	F
R801	1-216-675-11	METAL CHIP	10K	0.50%	1/10W	
R802	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R803	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R804	1-216-345-11	METAL OXIDE	0.47	5%	1W	F
R805	1-216-660-11	METAL CHIP	2.4K	0.50%	1/10W	
R806	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R903	1-249-417-11	CARBON	1K	5%	1/4W	
R904	1-249-417-11	CARBON	1K	5%	1/4W	
R906	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R907	1-260-087-11	CARBON	100	5%	1/2W	
R908	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R909	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R910	1-249-411-11	CARBON	330	5%	1/4W	
R911	1-249-413-11	CARBON	470	5%	1/4W	
R912	1-249-417-11	CARBON	1K	5%	1/4W	
R913	1-247-807-31	CARBON	100	5%	1/4W	
R914	1-247-807-31	CARBON	100	5%	1/4W	
R915	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
R916	1-216-077-00	RES,CHIP	15K	5%	1/10W	
R917	1-216-077-00	RES,CHIP	15K	5%	1/10W	
R918	1-249-417-11	CARBON	1K	5%	1/4W	
R919	1-249-417-11	CARBON	1K	5%	1/4W	
R920	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R922	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R924	1-216-664-11	METAL CHIP	3.6K	0.50%	1/10W	
R925	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
R927	1-216-295-91	SHORT	0			
R929	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
R931	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R933	1-249-419-11	CARBON	1.5K	5%	1/4W	
R934	1-249-429-11	CARBON	10K	5%	1/4W	
R935	1-247-807-31	CARBON	100	5%	1/4W	
R936	1-247-807-31	CARBON	100	5%	1/4W	
R937	1-249-417-11	CARBON	1K	5%	1/4W	
R938	1-247-807-31	CARBON	100	5%	1/4W	

The components identified by ⋈ in this manual have been carefully factory-selected for eachset in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
R940	1-215-431-00	METAL	2.7K	1% 1/4W	
R941	1-216-643-11	METAL CHIP	470	0.50% 1/10W	
R942	1-215-413-00	METAL	470	1% 1/4W	
R943	1-216-647-11	METAL CHIP	680	0.50% 1/10W	
R944	1-216-651-11	METAL CHIP	1K	0.50% 1/10W	
R945	1-215-425-00	METAL	1.5K	1% 1/4W	
R946	1-215-431-00	METAL	2.7K	1% 1/4W	
R947	1-216-671-11	METAL CHIP	6.8K	0.50% 1/10W	
R948	1-215-457-00	METAL	33K	1% 1/4W	
R951	1-216-025-91	RES,CHIP	100	5% 1/10W	
R952	1-247-843-11	CARBON	3.3K	5% 1/4W	
R953	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R954	1-216-073-00	RES,CHIP	10K	5% 1/10W	
R957	1-216-017-91	RES,CHIP	47	5% 1/10W	
R958	1-216-017-91	RES,CHIP	47	5% 1/10W	
RV601	1-215-435-00	METAL	3.9K	1% 1/4W	
		<VARIABLE RESISTOR>			
⋈ RV501⚠	1-241-767-21	RES, ADJ, CERMET			100K (HV ADJ)
		<RELAY>			
RY500	1-755-137-11	RELAY			
RY601⚠	1-755-031-11	RELAY			
		<SWITCH>			
S601 ⚠	1-571-433-31	SWITCH, PUSH (AC POWER)			
S901	1-692-431-21	SWITCH, TACTILE (CONT+)			
S902	1-762-816-11	SWITCH, TACTILE (BRIGHT)			
S903	1-692-431-21	SWITCH, TACTILE (CONT-)			
S904	1-692-431-21	SWITCH, TACTILE (MENU)			
S905	1-692-431-21	SWITCH, TACTILE (MUTE)			
S906	1-692-431-21	SWITCH, TACTILE (RESET)			
S907	1-692-431-21	SWITCH, TACTILE (MP)			
		<SPARK GAP>			
SG501	1-519-422-11	GAP, SPARK			
		<TRANSFORMER>			
T501 ⚠	X-4035-481-1	TRANSFORMER ASSY, FLYBACK			(NX-4400//J1L4)
T503	1-429-109-11	TRANSFORMER, FERRITE (DFT)			
T504	1-429-103-11	TRANSFORMER, FERRITE (HDT)			
T505	1-426-998-11	TRANSFORMER, FERRITE (HST)			
T601 ⚠	1-431-772-11	TRANSFORMER, CONVERTER (SRT)			
		<THERMISTOR>			
TH501	1-807-796-11	THERMISTOR			
TH600⚠	1-810-990-11	THERMISTOR			
TH601⚠	1-809-827-21	THERMISTOR, POSITIVE			
		<VARISTOR>			
VA600	1-810-622-11	VARISTOR			
VA601	1-810-271-21	VARISTOR ZNR-14DK471U			
		<CRYSTAL>			
X901	1-767-641-11	VIBRATOR, CRYSTAL			
X902	1-577-611-11	OSCILALTOR, CERAMIC			
		**********			
	* 8-933-303-00	J BOARD, COMPLETE			
		**********			
		<CAPACITOR>			
C1001	1-124-455-00	ELECT	100MF	20% 16V	
C1002	1-124-455-00	ELECT	100MF	20% 16V	
		<CONNECTOR>			
CN1001*	1-564-509-11	PLUG, CONNECTOR 6P			
CN1002	1-564-517-11	PLUG, CONNECTOR 2P			
		<FERRITE BEAD>			
FB1001	1-216-295-91		SHORT	0	
FB1002	1-216-295-91		SHORT	0	
FB1003	1-216-295-91		SHORT	0	
FB1004	1-216-295-91		SHORT	0	
FB1005	1-216-295-91		SHORT	0	
FB1006	1-216-295-91		SHORT	0	
FB1007	1-216-295-91		SHORT	0	
		<JACK>			
J1001	1-568-267-11	JACK (HEAD PHONE)			
J1002	1-568-267-21	JACK (AUDIO IN)			
		<RESISTOR>			
R1001	1-249-403-11	CARBON	68	5% 1/4W	
R1002	1-249-403-11	CARBON	68	5% 1/4W	

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